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THE UNIVERSITY OF ALBERTA

# CONSUMER UNDERSTANDINGS OF ALBERTA STUDENTS

by

© PATRICIA G. HERBERT

A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES AND RESEARCH

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## ABSTRACT

The purpose of this study was twofold. The first objective was to assess the consumer competency of grade nine and grade eleven students sampled from Edmonton Public and Separate School Systems. A test, based on the Test of Consumer Competencies (TCC-O, Stanley, 1976), was adapted and revised for use in this assessment. For the purpose of this study, comptency was defined as cognitive knowledge of the fourteen content areas subsumed in the test. The second objective was to analyze the effects on consumer competency of selected independent variables, namely: sex, grade, socio-economic status (S-E-S), school program, hours of employment, perceived exposure to consumer education, use of consumer information sources and money management practices.

Two procedural phases were used. The first consisted of adapting the test to Canadian usage. This involved rewording or generating test items followed by validating, pilot testing, and selecting appropriate test items. The final KR-20 of the Test of Consumer Competencies - Revised (TCC-R) was r = .72. The TCC-R and a Consumer Awareness Survey (CAS) were then administered to a stratified random sample of 328 (46%) junior high (from grade nine) and 336 (51%) senior high students (from grades eleven and twelve). Overall achievement of students on the TCC-R was 52%.

Students' scores were significantly affected by the factors of grade, sex, program, S-E-S, perceived exposure to consumer education, and hours of employment. Interaction analysis revealed that the factors of grade, S-E-S, and hours of employment were combining to significantly affect students' scores. The amounts of variation in students' mean scores which were attributable to their use of consumer information sources and money management practices were not significant, 8% and 11% respectively.

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TABLE OF CONTENTS


| | | Page |
|---|---|---|
| I. | INTRODUCTION | 1 |
| | Background and Justification for the Study | 1 |
| | Statement of the Problem | 3 |
| | Research Questions | 3 |
| | Definition of Terms | 4 |
| | Operational Definitions | 5 |
| | Delimitations | 6 |
| | Limitations | 6 |
| | Assumptions | 7 |
| II. | REVIEW OF LITERATURE | 8 |
| | Historical Development of Consumer Education | 10 |
| | Two Approaches to Consumer Education | 12 |
| | Consumer Education in the United States | 14 |
| | The Canadian Scene | 14 |
| | Consumer Education Across Canada | 14 |
| | Consumer Education in Alberta | 16 |
| | Findings on Consumer Research and Tests for Evaluation | 19 |
| | Consumer Knowledge of Students and Program Effectiveness | 20 |
| | Test Instruments and Assessment Devices | 23 |
| | Summary | 25 |
| III. | METHODS AND PROCEDURES | 26 |
| | The Sample | 26 |

Page

Design and Procedures ..... 27

Description of Instruments ..... 29

Description of Stanley's Test of Consumer Comptencies (TCC-O) ..... 30

Development of the TCC-R (Form 1) ..... 31

Consumer Awareness Survey (Form 2) ..... 34

Blishen's Socio-Economic Scale ..... 34

Statistical Analysis of Data ..... 35

IV. RESULTS ..... 39

Description of Sample ..... 39

Research Questions and Results ..... 40

Overall Student Knowledge on the TCC-R ..... 40

Student Consumer Knowledge and Selected Demographic Variables ..... 44

Additional Findings ..... 71

Summary ..... 72

V. DISCUSSION, IMPLICATIONS AND RECOMMENDATIONS ..... 74

Discussion of the Findings ..... 74

Student Consumer Knowledge as Measured by the TCC-R ..... 74

Effects of Selected Independent Variables on Student Consumer Knowledge ..... 76

Sex, School Program and Perceived Exposure to Consumer Education ..... 76

Interactive Effects of Grade, S-E-S, and Hours of Employment ..... 77

Page

Relationship of Students' Use of Information Sources and Money Management Practices to Consumer Knowledge ..... 78

Conclusions ..... 79

Implications ..... 80

Recommendations for Further Research ..... 81

BIBLIOGRAPHY ..... 84

APPENDIX A: Validation Procedures and Expert Panel Ratings for the TCC-R ..... 93

APPENDIX B: Test Items, Directions for Test Administration, and Test Questions Listed by Content Areas ..... 110

APPENDIX C: Consumer Awareness Survey (CAS) ..... 121

APPENDIX D: Item Analysis on the TCC-R ..... 130

APPENDIX E: Analysis of Student Responses on the TCC-R Sub-Tests ..... 143

APPENDIX F: Tables ..... 158

APPENDIX G: Correspondence ..... 178

LIST OF TABLES


| Table | Description | Page |
|---|---|---|
| 1. | The Survey Sample | 28 |
| 2. | Categorization of Students into Three Socio-Economic Levels | 41 |
| 3. | Frequency Distribution of Scores on the Test of Consumer Competencies - Revised (TCC-R) | 42 |
| 4. | Means, Frequencies, Percents and Ranges on Each of the TCC-R Sub-Tests | 45 |
| 5. | Mean Scores, Standard Deviations and Percentages on the TCC-R for the Categories of Hours of Weekly Employment | 47 |
| 6. | Analysis of Variance of Students' Mean Scores on the TCC-R for the Categories of Hours of Weekly Employment | 47 |
| 7. | Means Scores, Standard Deviations and Percentages on the TCC-R for Grades 9 and 11 | 48 |
| 8. | Analysis of Variance of Students' Mean Scores on the TCC-R for Grades 9 and 11 | 48 |
| 9. | Mean Scores, Standard Deviations and Percentages on the TCC-R for Grades 9, 11 and 12 | 50 |
| 10. | Analysis of Variance of Students' Mean Scores on the TCC-R for Grades 9, 11, and 12 | 50 |
| 11. | Mean Scores, Standard Deviations and Percentages on the TCC-R for the Categories of Perceived Exposure to Consumer Education | 51 |
| 12. | Analysis of Variance of Students' Mean Scores on the TCC-R for the Categories of Perceived Exposure to Consumer Education | 51 |
| 13. | Mean Scores, Standard Deviations and Percentages on the TCC-R for Male and Female Students | 53 |
| 14. | Analysis of Variance of Students' Mean Scores on the TCC-R for Male and Female Students | 53 |
| 15. | Mean Scores, Standard Deviations and Percentages on the TCC-R for the Categories of High School Program | 54 |

| Table | Description | Page |
|---|---|---|
| 16. | Analysis of Variance of Students' Mean Scores on the TCC-R for the Categories of High School Program ..... | 54 |
| 17. | Mean Scores, Standard Deviations and Percentages on the TCC-R for the Categories of Socio-Economic Status ..... | 56 |
| 18. | Analysis of Variance of Students' Mean Scores on the TCC-R for the Categories of Socio-Economic Status .... | 56 |
| 19. | Mean Scores of Students on the TCC-R Classed Under Different Grade, S-E-S, and Perceived Exposure to Consumer Education Categories ..... | 59 |
| 20. | Analysis of Variance of Students' Mean Scores on the TCC-R ..... | 60 |
| 21. | Summary of Multiple Classification Analysis of Students' Mean Scores on the TCC-R ..... | 62 |
| 22. | Mean Scores of Students on the TCC-R Classed Under Different S-E-S, Grade, and Employment Categories .... | 64 |
| 23. | Analysis of Variance of Students' Mean Scores on the TCC-R ..... | 65 |
| 24. | Summary of Multiple Classification Analysis of Students' Mean Scores on the TCC-R ..... | 66 |
| 25. | Mean Scores of Students on the TCC-R Classed Under Different Employment, S-E-S, and Perceived Exposure to Consumer Education Categories ..... | 159 |
| 26. | Analysis of Variance of Students' Mean Scores on the TCC-R ..... | 160 |
| 27. | Summary of Multiple Classification Analysis of Students' Mean Scores on the TCC-R ..... | 161 |
| 28. | Mean Scores of Students on the TCC-R Classed Under Different Employment, Grade and Perceived Exposure to Consumer Education Categories ..... | 162 |
| 29. | Analysis of Variance of Students' Mean Scores on the TCC-R ..... | 163 |
| 30. | Summary of Multiple Classification Analysis of Students' Mean Scores on the TCC-R ..... | 164 |
| 31. | Mean Scores of High School Students on the TCC-R Classed Under Different Employment, Program and Perceived Exposure to Consumer Education Categories ..... | 165 |

| Table | Description | Page |
|---|---|---|
| 32. | Analysis of Variance of High School Students' Mean Scores on the TCC-R | 166 |
| 33. | Summary of Multiple Classification Analysis of High School Students' Mean Scores on the TCC-R | 167 |
| 34. | Mean Scores of High School Students on the TCC-R Classed Under Different Program, S-E-S and Perceived Exposure to Consumer Education Categories | 168 |
| 35. | Analysis of Variance of High School Students' Mean Scores on the TCC-R | 169 |
| 36. | Summary of Multiple Classification Analysis of High School Students' Mean Scores on the TCC-R | 170 |
| 37. | Mean Scores of High School Students on the TCC-R Classed Under Different Program, S-E-S and Employment Categories | 171 |
| 38. | Analysis of Variance of High School Students' Mean Scores on the TCC-R | 172 |
| 39. | Summary of Multiple Classification Analysis of High School Students' Mean Scores on the TCC-R | 173 |
| 40. | Means and Standard Deviations of Students' Use of Consumer Information Sources and Correlations to Mean Scores on the TCC-R | 174 |
| 41. | Summary of Multiple Regression Analysis of Students' Use of Consumer Information Sources with Mean Scores on the TCC-R | 175 |
| 42. | Means and Standard Deviations of Students' Money Management Practices and Correlations to Mean Scores on the TCC-R | 176 |
| 43. | Summary of Multiple Regression Analysis of Students' Money Management Practices with Mean Scores on the TCC-R | 177 |

## LIST OF FIGURES


| Figure | | Page |
|---|---|---|
| 1. | Histogram of Scores on the Test of Consumer Competencies-Revised (TCC-R) ..... | 43 |

# CHAPTER I

## INTRODUCTION

### Background and Justification for the Study

Numerous questions have arisen regarding consumer education in the secondary schools. Prevalent concerns cluster around some of the following issues: Should consumer education be taught as a separate or integrated subject? What effects do consumer education courses have on measured consumer competency or understanding? What factors affect the basic consumer concepts held by students? What test instruments are available to assess the cognitive knowledge and attitudes of students towards consumer issues?

One of the major aims of consumer education programs is to provide students with information and skills that better prepare them to deal with the marketplace on an individual basis. Information is derived from programs which provide an understanding of marketplace and economic complexities plus an awareness of consumer rights and responsibilities. The skill component is experienced through the recognition and development of decision making skills in conjunction with personal value systems. In the words of Stanley (1976, p. 5):

> The issues which remain are questions like how, what, when, by what techniques, and with what preparation is society best able to serve the educational needs of future consumers. These questions are the domain of educational research...that is founded on the collection of realistic, meaningful data through the use of adequate tests or evaluation instruments.

The need to measure the consumer knowledge of Alberta students is in response to the "what" question. Little is known about the present state of student knowledge regarding consumer issues. An awareness of what this knowledge is can guide educators in their concern to best serve the needs of future consumers. As areas of need are identified they can be used by program planners and curriculum developers or both.

A measurement instrument appropriate to Alberta was required so that areas of need could be determined. Part of this study involved the adaptation of an existing test to the Alberta situation. The revised test measures consumer knowledge or competency at the secondary school level. As such this test could be used by educators as a needs assessment device. Regional program planning that relates more directly to individual or local needs of students may result through the use of this instrument.

A major focus of recent consumer education programs has been to develop within individuals the skills, concepts and understanding required for making everyday-living decisions. To achieve this goal, consumer educators have created programs that relate more directly to "real life" experiences. These programs are seen as being "life-skill" in orientation. Evaluation devices which give insight into the knowledge of students will provide a consumer competency measure relative to life-skills. As such it can be used in both formative and summative assessment of "actual" and "perceived" consumer education programs.

## Statement of the Problem

The purpose of this study was to investigate specified cognitive aspects of the consumer knowledge of adolescents through a sampling of junior and senior high school students in Alberta. Measured consumer knowledge was compared with specific variables, namely: school program, socio-economic status, hours of employment, sex, grade level, and perceived exposure to consumer education. An existing test (Test of Consumer Competencies, Stanley, 1976) was revised for the purpose of measuring cognitive consumer knowledge in this study. Demographic information was collected through a survey designed for this study (Consumer Awareness Survey).

## Research Questions

This study focused on the following questions:

1. What is the level of consumer knowledge of Alberta students as measured by the Test of Consumer Competencies - Revised? That is, what are the areas of strengths and weaknesses of student knowledge?
2. Are there any differences between the consumer knowledge of students when selected factors such as grade, sex, employment, socio-economic status, school program and perceived exposure to consumer education are considered?
3. Is there a relationship between the consumer knowledge of students and their use of consumer information sources? (Information sources such as family, friends, school programs, sales personnel and media will be considered.)
4. Is there a relationship between the consumer knowledge of students and their reported behavior with regard to money management?

## Definition of Terms

For the purposes of this study, terms are defined as follows:

Consumer - an individual who is involved in obtaining and using goods and services.

Consumer education - the development within the individual of the necessary concepts and skills needed in dealing with the problems of individual consumers in the marketplace as well as those of all consumers in society. The areas chosen to represent the consumer educational domain are those outined in the Test of Consumer Comptencies.

Test of Consumer Competencies (TCC-O) - the original TCC (referred to as TCC-O for this study) consists of two equivalent 55-item multiple-choice tests based on 55 performance objectives. Performance objectives were derived from the Illinois Guidelines for Consumer Education which, according to Stanley, generally reflect the content of most consumer education course guidelines (Stanley, 1976, p. 3-5). The items measure cognitive consumer knowledge in fourteen areas:

1) the individual consumer in the marketplace, 2) money management, 3) consumer credit, 4) housing, 5) food, 6) transportation, 7) clothing, 8) health services, drugs and cosmetics, 9) recreation, 10) furnishings and appliances, 11) insurance, 12) savings and investments, 13) taxes, and 14) the consumer in society.

Test of Consumer Competencies - Revised (TCC-R) - a single form multiple-choice test based on the TCC-O developed by Stanley and

adapted as part of this study. The test measures cognitive consumer knowledge in fourteen areas outlined above. The TCC-R appears in Appendix B.

## Operational Definitions

Consumer Knowledge - the understanding of the 14 consumer content areas, their meanings and inter-relationships as indicated by students' total scores on the TCC-R and their scores on each of the sub-scales. Mean scores on the TCC-R were used as the measure of students' cognitive consumer knowledge.

Consumer education "aware" students (CEAS) - those students who perceived having taken consumer education concepts in school as indicated by student response to question 133 on the Consumer Awareness Survey (Appendix B).

Consumer education "unaware" students (CEUS) - those students who did not perceive having taken consumer education concepts in school as indicated by student response to questions 133 on the Consumer Awareness Survey (Appendix B).

Socio-Economic Status (S-E-S) - the ranking of students into social levels through the use of an established socio-economic index (Blishen & McRoberts, 1976) which relates S-E-S as a function of parental education and occupation.

School Program - the high school program in which students are enrolled as indicated by student response to questions 101 and the Consumer Awareness Survey (i.e., General, Vocational, Business, or Academic Program).

Employment - the number of hours that students are employed in jobs for which they receive specific incomes. Categories of work employment were identified from raw data figures provided by student response to question 103 on the Consumer Awareness Survey which asks students to indicate their typical employment hours for the last week.

## Delimitations

This study considers only specified factors that may have an effect on consumer competency or understanding of students. That is, types of consumer concepts presented in existing courses, the methodology employed in teaching consumer education, teacher training qualifications, or the effects of external "teaching" sources such as media, parents and other role models, are not considered. This study represents only one approach to evaluation and will not attempt to measure or comment on attitude or behavioral change.

## Limitations

Although many factors may have an effect on consumer competency, this study considers only the factors of student grade level, sex, school program, S-E-S, employment, and student perceptions of having been exposed to consumer concepts in school. The study is further limited to the sampled students enrolled in grades 9 and 11 in Edmonton Public and Separate school systems. The mean scores on TCC-R will be used to draw conclusions only for those sampled and will only reflect knowledge in the specified 14 content areas measured by the test.

Assumptions

1. The TCC-R is valid and reliable measure of consumer competency.
2. The students' scores on TCC-R accurately reflect their consumer comptency.
3. The student responses on the survey form provide accurate demographic data.
4. The sample is representative of the population from which it was drawn.

## CHAPTER II

## REVIEW OF LITERATURE

A great deal is written about the need for consumer education and so much time has been spent on the development of programs of study for inclusion in schools, yet we know little of the overall effectiveness of what is being taught. We do know that: the Consumer Price Index (CPI) has risen 94.5 points above the 1971 base (Statistics Canada, 1980); the average consumer debt for a family of four is $6,000 (Provincial Consumer and Corporate Affairs, 1980); that Canada's per capita use of credit is one of the highest in the world (thirty-billion dollars worth of consumer credit in 1978); there is concern that conspicuous consumption has contributed to "pollution and waste-disposal problems that threaten to reduce our country [U.S.A.] to a giant trash heap" (Swagler, 1979, p. 6); and that rapidly depleting energy sources are demanding changes in the consumption and production patterns of people (Fitzpatrick-Martin, 1980, p. 153; Valaskakis, 1980, p. 151; 160).

Since the early 1960's, the activities of Ralph Nader and other vocal persons have done much to publicize the plight of consumers and made those in business take note (Langrehr & Mason, 1977; p. 68; Roseman & Edmonston, 1977, p. i). Lately, the consumer movement has become more evident through the use of mass media -- primarily as a result of television (McNeal, 1978, p., 50). United States governments have

supported the movement with protective legislation and the establishment of basic rights for the consumer: the rights to safety, redress, choice, and to be heard. In 1975, President Ford added a fifth right to the existing rights of consumers -- the right to consumer education (Langrehr & Mason, 1977, p. 68; Bloom & Silver, 1976, p. 40). Political officials believe consumer behavior significantly affects the overall psychological well being of individuals, and consequently, the nation. Thus, there has been a strong push (in the USA, in particular) to be sure that people possess adequate consumer skills through the inclusion of compulsory consumer education programs (McNeal, 1978, p. 50).

The literature in this review has been selected to provide background knowledge on the development of consumer education and to summarize the research findings which relate specific variables to the effectiveness of consumer education programs. The following topics are considered: the historical development of consumer education, the "state of" consumer education in the United States and Canada with particular emphasis on Alberta; and a review of the instruments and findings applicable to consumer education research and evaluation.

## Historical Development and Consumer Education

Writings expressing concern about the consumer's plight in the marketplace date back to the early 1920's. At that time, people were thought of as "choosers" rather than "users" of products yet few were adequately trained for their roles as buyers. "Experience" in the marketplace was the usual means of finding out about product choice and

usage. Consequently, early economists and consumer advocates stressed the need to develop a "framework for careful buying". Henry Harap, a prominent economics educator, suggested in 1927 "that schools need to offer consumption education as well as production education" (Langrehr & Mason, 1977, p. 66). Harap felt training programs were needed so that people could improve their buying practices associated with food, clothing and fuel.

Many people agreed with Harap that skill in purchasing was not innate. With the coming of mass production, individuals and families relied more heavily on the marketplace for goods and services. Consumers lacked specialized knowledge or training not only in choosing the best product among the myriad being offered, but also in understanding the technology of their production. Consumer education of the 1920's tried to discourage poor consumption habits by encouraging people to make informed decisions. It was hoped that effective consumption of economic goods would enable people to live effectively within their means.

In the 1930's a number of formal courses on consumer education were initiated at both the secondary school and college levels. The introduction of formal courses in consumer education not only recognized the consumer's lack of skill in the marketplace but also was a response to the sudden deflation caused by the Great Depression. In view of the deflated status of the dollar, the focus of consumer education courses shifted towards helping people "get-the-most-for-the-dollar". The courses of the 1930's tended to be female-oriented and stressed the need for product standardization, labelling, buymanship and money-management (Dameron, 1939).

One of the first definitions of consumer education came from a National Association of Secondary School Principals' bulletin in the 1940's. Consumer education was to help people become more intelligent, more effective and more conscientious consumers (Schoenfeld, 1967, p. 27). Although the prime goal was to improve buymanship, a secondary goal was to help students develop "proper" sets of values which would help direct their overall lifestyle, including consumption goals (Schoenfeld, 1967, p. 28). Gradually courses shifted from a buymanship emphasis to one that stressed the relationship of consumption to personal values and goals.

This shift lead to the 1950's movement which focused on "life adjustment education". Courses in this era were very practical, related to everyday activities and provided vocational or life-skill preparation for non-college bound students. However, this approach was not fully developed. It was interrupted by the rush of educators to improve the "hard" sciences in response to the Russian launching of Sputnik.

The need for consumer education re-emerged in the 1960's. At this time economic problems similar to those of the 1930's were being faced by consumers, the level of living was declining as prices increased faster than wages. It was at this time that government interest in the state of consumer affairs increased greatly. The Kennedy administration (1962) was instrumental in setting up Federal committees and departments to protect the consumer interest. Similar government interest in consumer affairs was evident in Canada. In 1966 the Federal Department of Consumer and Corporate Affairs was created, and subsequently, consumer ministries in many provinces. In Canada, the creation of these

departments was a direct result of the pressure from volunteer consumer groups, particularly the Consumers' Association of Canada (CAC) (Morningstar, 1977, pp. 30-31). More restrictive product legislation in both the US and Canada was one of the first direct results of this governmental support. Consumer programs stressed skill in buymanship plus the need to be aware of and exercise the established rights of consumers.

In the 1970's it appeared that some consumer educators were clinging to a predominantly buymanship approach, whereas others had adopted a life-skills or value-oriented approach. The latter approach reflects the life adjustment emphasis of the 1950's. Despite the approach taken, consumer education programs of the '70's bear the influence of a new set of societal concerns: the "macro" issues of conservation and ecology and the related "micro" (personal/individual) issues of health and safety. Concern about food additives, hazardous products in drugs and cosmetics, and product recalls of major durables started to dominate the interests of consumers.

## Two Approaches to Consumer Education

More recent attempts to define what is termed as consumer education evolve around one of two perspectives: "(1) an economic perspective, or (2) a life-goals perspective" (Langrehr & Mason, 1977, p. 69).

Buymanship programs were designed to give consumers the knowledge they needed in order to make informed purchases. They taught the skills, how-to's and rules of buying. Armstrong and Uhl's (1971) definition

gives evidence of the economic metaphor that pervaded these programs:

> Consumer education was defined as the educational and information investments in the human agent's capabilities for performing those roles associated with directing economic activity, satisfying public and private wants and improving economic performance in the marketplace. (Armstrong & Uhl, 1972, p. 532)

This definition reflects a primary concern with economic resource utilization.

In contrast, life-goals programs emphasized the development of students' value systems so that they could define their own goals plus determine the most effective way of reaching them. Consumer education was defined as:

> The development of individuals in the skills, concepts and understandings required for everyday living to achieve, within the framework of their own values, maximum utilization of and satisfaction from their resources. (Schoenfeld, 1967, p. 28)

Resources were to include natural and human resources as well as economic ones.

Program development in various states and provinces has been guided by Schoenfeld's expanded view of consumer education. Four commonly held goals of such programs are:

1. to help consumers understand the complexities of the marketplace, to appreciate the roles that producers, distributers, consumers, and government play in the free enterprise economic system.
2. to help consumers recognize and develop their own value systems.
3. to help consumers build strong decision-making processes essential for informed, intelligent purchasing.
4. to create an awareness of consumer rights and responsibilities so that:
   i) consumers can protect themselves in the market, and

ii) consumers can search out more information.

## Consumer Education in the United States

Government action supporting the introduction of consumer education concepts into curricula has varied according to individual state and departmental mandates. The establishment of consumer rights and formation of the Federal Office of Consumer Education in 1962 was indicative of the Presidential support and interest in consumer education. On a national scale, the Consumer & Homemaking Education section of the Vocational Amendments Acts (1968) directly influenced program development and implementation in the United States. By 1976, ten of the twenty-eight states offering programs specified "a course in consumer education as a requirement for graduation from a public high school" (Stanley, 1976, p. 8). States offering consumer education programs have done so either in the form of special courses, or through integration into established subject matter classes (Garman, 1979, p. 54).

## The Canadian Scene

### Consumer Education Across Canada

The Canadian Education Association study entitled Will That Be Cash or ?...A Look at Consumer Studies in Canada (Beaugrand-Champagne, 1975) indicated that nine out of the ten provinces were providing some form of program in consumer education. At that time no province had a policy of

compulsory consumer education through its school systems. However, in Ontario, certain school boards had compulsory department approved courses as early as 1968. Some school boards in other provinces have since developed similar policies. Most notable are the Maritime provinces. Specific consumer programs are offered to a more limited extent in Alberta and Saskatchewan.

In Canada, consumer related studies are "part of a group of courses designed to prepare students for life and living" (Beaugrand-Champagne, 1975, p. 13). Approximately 60% of the departments and school boards indicated that "this was a typical mode of teaching consumer education in their school systems (Beaugrand-Champagne, 1975, p. 8). Other courses that were part of this group were: Religion and Values Education; Psychology; Health; Preparation for Adulthood; Social Sciences, Politics, Law and Governance; Business Education and Home Economics. Across Canada "specific" courses in consumer education were primarily offered to secondary students from both academic and vocational programs. The aims of most of the courses were to develop:

1) informed consumers
2) understanding of the role of the consumer in society
3) decision-making processes based on individual goals and values
4) better ways of using resources so that consumer satisfaction could be increased
5) understanding of consumer rights and responsibilities.

Interestingly, Beaugrand-Champagne found that most of the teachers were not specifically trained in consumer education. More often their

teaching majors were in the areas of business education, home economics and social studies.

Although the major focus for consumer education is at the secondary level, the Western Provincial Task Force (Consumer Oriented Studies for Elementary School Children, 1976) found support for the inclusion of consumer studies at the elementary level. At both levels, the preferred mode of teaching by teachers was to integrate consumer studies with existing subjects.

## Consumer Education in Alberta

Data from the Canadian Education Association study (Beaugrand-Champagne, 1975, pp. 34-36) indicated that consumer studies appeared on an incidental basis in almost all courses. More distinct consumer modules formed a part of the following Alberta courses:

Social Studies 10

Social Sciences 10, 20

Business Fundamentals 10, 20, 30

Business Foundations 10, 30

Home Economics 7-9, 10-12

Christian Family Living 7-9

Christian Marriage 10-12

Marketing 20, 30

Record Keeping 10

Law 20

The number and types of consumer issues addressed in each of the courses varied. As a follow up to these findings an initial review of

Alberta curriculum guides for these subjects revealed a total of 226 objectives that related directly to the consumer education domain. A considerable number of objectives related to the areas of the individual consumer in the marketplace, money management, consumer credit, food, housing and the consumer in society; whereas fewer objectives were found related to the areas of health services, drugs and cosmetics, taxes, insurance, and transportation (Herbert & Wagner, 1980).

The Red Deer Public School Board is one education system in Alberta that has chosen to formalize consumer education. In 1974, the board approved a consumer program as a mandatory component of the Social Studies 10 program. A relatively current description of the major study topics in this compulsory module can be accessed through the curriculum guide prepared by the Red Deer committee (Red Deer, 1978b). The Junior High Consumer Education program is an optional course. Although the guide suggests topics that have been selected for study at the junior level specific decisions as to the grade level at which it is offered, length of course, and whether it is optional or compulsory are left to individual schools. These programs of study are used in addition to the CoSt Project (Red Deer, 1978a) which Red Deer school district helped to develop.

Considerable variation existed therefore in the status and types of consumer programs offered in Alberta schools. It was evident to consumer educators in Alberta that the consumer education domain lacked cohesiveness and homogeneity. In 1976, a joint committee representing Alberta Education and Alberta Consumer and Corporate Affairs personnel

was formed to address this concern. This committee, the Alberta Consumer Education Curriculum Committee, published more definitive goals and guidelines in the document Teaching Consumer Education Through the Regular School Program (1979). The definition established that:

> Consumer Education, while passing on consumer information and teaching economic principles would emphasize the development of decision-making skills within the context of personal, social and environmental topics related to consumer issues and concerns.

Consumer education programs would share the following goals:

Immediate goal - To enhance individual awareness both of consumer issues and of oneself as a consumer.

Further goals - To assist individuals to achieve physical and psychological well-being through the considered use of personal and environmental resources.

- To provide individuals with the lasting concerns, understanding, and skills that will allow them to participate more thoughtfully in the economic, social and political spheres of consumer decision-making.

Ultimate goal - To determine and sustain a quality of life in keeping with the goal of achieving physical, and psychological well-being for all.

(Alberta Education and Consumer & Corporate Affairs, 1979, p. 11).

From the definition and objectives given, it seems as though Alberta has adopted the life-goals or values perspective towards consumer education. The program emphasis in the document is primarily on the development of process skills such as awareness, inquiry, decision-making and valuing within students.

The curriculum committee suggested that programs be developed following the integrated or interdisciplinary approach. Their rationale was as follows (Alberta Education and Consumer & Corporate Affairs, 1979, p. 19):

> To be a good consumer involves the proper utilization of a wide range of knowledge and skills. Thus Consumer Education must of necessity, relate to all the core subject areas of Math, Science, Social Studies and Language Arts, as well as others including Art, Business Education, Home Economics and Health. To attempt to subsume Consumer Education under one area, would be to artificially distort and hamper it.

From this rationale, the Consumer Education Curriculum Committee reached the following conclusions:

1. Consumer Education topics should be covered by most subject areas, particularly by core subjects which reach the whole student population.
2. The interdisciplinary nature of Consumer Education should be preserved as much as possible when integrated with the existing curriculum.

In view of the stated goals and interdisciplinary nature of consumer education in Alberta, the following questions arose. What knowledge do Alberta students possess regarding consumer issues? In what areas do students have the background knowledge to enable them to be competent consumers? In what areas are weaknesses evident? Thus the assessment of the consumer competencies of secondary students became the focus of this study.

## Findings in Consumer Education Research and Tests for Evaluation

This section of the review of the literature presents studies that

measured program effectiveness as well as consumer knowledge or competence of students. A review of tests and guides to assessment of consumer skills is also included.

## Consumer Knowledge of Students and Program Effectiveness

A review of the historical and developmental aspects of consumer education conducted by Langrehr (1977, pp. 63-79) revealed few appreciable differences between students who had consumer education courses and those without. More recently Langrehr (1979, pp. 41-53) assessed competency and attitudinal differences of students having had compulsory consumer education programs with those who had not. These findings indicated that competencies can be increased by taking consumer education courses. An improved attitude toward business was a further outcome.

Wong (1978) found similar results with students who had taken consumer-oriented mathematics courses. Competency relative to proficiency in solving consumer-related mathematics problems was lower than expected for grade 12 level. Students were very weak in the calculations of gross pay using a time card and in the reconciliation of cheque book and bank statements. Wong recommended that more direct emphasis be placed on the teaching of personal finance skills. Following this recommendation, the government of British Columbia funded a project to develop a curriculum guide on consumer mathematics for secondary schools. The proposed curriculum contains thirty-two topics. According to the committee, additional resource materials need to be developed to cover topics which the prescribed texts neglect.

In 1977 the Massachusetts State Department of Education assessed the consumer skills and values of nine and seventeen year olds in six areas of consumer education: borrowing, buying, investing, planning, protecting, and sharing. The methodology involved the use of paper and pencil instruments. In addition, the seventeen year olds had simulated consumer negotiations and the nine year olds had structured interviews.

Variances in assessed knowledge, understanding and values of consumer education in the Massachusetts study were attributed to the variables of age, sex, plus community and familial backgrounds. Student's knowledge and understanding of borrowing was affected by community, age, sex, school attitude, and socio-economic factors. Seventeen year olds from big-city/industrial suburbs scored lower than those in residential communities. Females scored lower than males. School attitude related to understanding at both ages. Students (17 year olds) from middle S-E-S groups scored slightly lower than those from low and high S-E-S groups. Similar trends were apparent with regard to students' knowledge of buying. The area of investing was affected by community and S-E-S factors for nine year olds only. Residentially located, middle-to-high S-E-S students scored higher. Understanding of the area of planning was affected similarly by community and S-E-S factors. In addition, the degree and type of reading done by seventeen year olds made a significant difference. The concept of consumer protection knowledge was significantly related to community, sex and school attitude for the older students. A significant relationship between school attitude and knowledge of protection agencies was apparent. Females scored slightly higher than males. The content areas under sharing relate significantly

to type of community (residential highest scoring), sex (males higher than females), S-E-S (most difference was between high and low S-E-S groups) and school attitude (those with positive attitudes scored higher).

Seymour (1975) used the Consumer Education Test to investigate the relationship between consumer understanding and specific personal and curricular factors. He found significant differences in consumer knowledge level when the completion of a consumer education course, age, grade level, scholastic ability and large school size were considered. He further reported that males scored higher than females.

McCall's study (1973) using the Test of Consumer Knowledge (TOCK) reflected similar findings. Significant differences in knowledge were attributed to age, grade level and school size. Significant differences were also found in the knowledge of male and female students in urban and sub-urban areas but not in rural areas.

Litro (1969) studied the relationship between social position and the consumer attitudes and understanding of students. He found that students from upper social positions scored significantly higher on achievement and attitudes measures. He concluded that: (1) consumer attitudes and understanding seem related to social position; (2) students of low socio-economic status (S-E-S) were deficient in almost all areas measured by the tests; (3) levels of understanding and attitudes of low S-E-S students related to the school program in which they were enrolled and their work experience.

Test Instruments & Assessment Devices

As interest and legislation governing consumer education increased in the United States, a number of tests and guides to assessment of consumer skills were developed. Prior to constructing his own test, Stanley (1976, pp. 16-84) reviewed thirty-six tests capable of measuring the cognitive knowledge of students in the general area of economic concepts.

He found that no standardized test existed to measure the knowledge of public school students in the fourteen content areas previously outlined as being common to the consumer education domain. Of the tests he reviewed only two covered the entire range of topics. They were found in the Teachers' Manual for The American Consumer and the Practicum for The Consumer's World textbooks. Despite the large item pool available in these publications, these two sources did not provide a single test of cognitive knowledge. Also, no data on test item performance, reliability or norming was available.

The remaining thirty-four instruments only partially measured the consumer education domain. Many considered only the economic aspects of consumer education. Some contained dated information while others lacked sufficient data for research purposes.

Because of the need for an effective measurement device, Stanley developed the Test of Consumer Competencies (TCC) in his doctoral research (1976). The TCC is a highly reputable test and has become widely used in subsequent research: Davis, (1977); Garman, (1979); Guthrie and Garman, (1980); Bloom and Ford (1979). The TCC (see page 30) was chosen as the test to revise for use in this study.

The TCC (Form B) was used by Davis (1977) to assess competencies of Kentucky high school graduates. Davis cited results that compared favorably with the Illinois seniors studied by Stanley in 1976. Students showed strength in areas of money management, housing and the individual within the marketplace. Weaknesses were found in consumer knowledge about food, taxes, and savings. Those areas in which students could improve were insurance, credit, clothing, furnishings, recreation and the consumer in society. Davis recommended improvement in teacher consumer education background in order to improve student consumer competency.

Garman (1979) addressed the concern regarding teacher consumer education background in his national assessment of the cognitive consumer education knowledge of prospective teachers. He found that those sampled scored less than 60% on Stanley's Test of Consumer Competencies. Prospective teachers who had a consumer education course had higher scores and increased levels of comprehension. Garman confirmed the previous conclusion made by Davis that teacher training in consumer education concepts was needed.

A review of the literature indicated a number of tests and guides to assessment of consumer skills for United States students. However, little or no research has been done to develop a consumer competency test in Canada.

## Summary

The review of the literature revealed that the current thrust in the United States is toward making a course in consumer education a requirement for graduation from public school. A number of tests and guides to assessment of consumer knowledge have been developed and used in that country. Research based on the use of these tests suggests that certain characteristics influence a student's consumer knowledge.

Although some school boards in Canada have made consumer education a compulsory subject, the preferred mode of teaching consumer concepts seems to be from an integrated or interdisciplinary approach. Such is the case in Alberta. Little or no research has been done to develop consumer competency tests for Canadian use. Consequently, we have limited understanding of what the consumer knowledge of Canadian students is or what factors influence this knowledge level. Thus revision of a test that measures consumer competency and assessment of the consumer understanding of a sample of Alberta students became the emphasis of this study.

# CHAPTER III

## METHODS AND PROCEDURES

This chapter includes descriptions of the sample selection, design and procedures, and the statistical methods used in the analysis of the data.

### The Sample

A decision was made to sample core-subject classes in order to obtain a representative cross-section of junior and senior high school students. Insofar as all students must take English and Social Studies, it was decided that students in these classes would constitute the population. Grade nine and eleven classes were chosen to represent the more senior years of junior and senior high school respectively.

Classroom totals were obtained from Edmonton Public (EPSB) and Edmonton Separate (ESSB) school boards. Totals were based on full-time enrollments of grade nine and grade eleven English/Social Studies classes in the second semester of the 1980-81 school year.

From this population, a stratified random sample was chosen. The following considerations were given to the selection:

1. The total number of English/Social Studies classes in Edmonton Public was greater than that of Edmonton Separate. Thus seventeen EPSB and eleven ESSB classes were sampled.

2. In order to obtain a representative cross-section of students from all high school programs, both English/Social Studies 20 plus English/Social Studies 23 classes were included in the sample. Thus both academic and non-academic students were included.

3. At the junior high level all students must take Language Arts. A proportionately representative sample of students from all grade nine classes was used.

4. Schools were selected so that a range of socio-economic levels were represented. Information on the socio-economic status of the areas in which schools were located was obtained from EPSB personnel.

5. Figures concerning average class sizes were obtained from each of the school boards. Figures on average class size and numbers of classes were combined to determine population size.

Sample size was determined on the basis of these considerations plus the guidelines for sampling outlined by Fitz-Gibbon and Lyons-Morris (1978). The final sample consisted of 664 students. A breakdown of the sample according to school, grade level and subject is presented in Table 1.

Permission to test and survey students was obtained from Edmonton Public and Separate School Boards. Principals of the selected schools were contacted to select mutually satisfactory dates for the data collection. Principals then contacted teachers of the desired classes and arranged for entry into the classrooms.

## Design and Procedures

A survey study was conducted to explore the relationship between factors of consumer knowledge and selected demographic variables of students in Edmonton Public and Separate schools. The design of the

Table 1

The Survey Sample (n = 664)

| School | Senior High | | Junior High | Total |
|---|---|---|---|---|
| | English 20/ Social 20 | English 23/ Social 23 | Language Arts 9 | |
| Bonnie Doon | 122 | 76 | - | 198 |
| Archbishop O'Leary | 45 | 22 | - | 67 |
| Austin O'Brien | 28 | 15 | - | 43 |
| Louis St. Laurent | 28 | - | - | 28 |
| Cartier McGee | - | - | 47 | 47 |
| St. Cecilia | - | - | 58 | 58 |
| J. H. Picard | - | - | 21 | 21 |
| Parkdale | - | - | 24 | 24 |
| Vernon Barford | - | - | 77 | 77 |
| Londonderry | - | - | 101 | 101 |
| | 223 | 113 | 328 | 664 |

study was cross-sectional in nature with students as the units of analysis. Student test scores on the revised Test of Consumer Competencies (TCC-R) were treated as the dependent variable; demographic variables and classification data determined by the survey form were the independent variables.

The measurement and survey instruments were administered to intact classrooms of grade 9 and 11 students by the researcher during the weeks of March 2-13, 1981. Each student completed two forms: Form 1 being the TCC-R and Form 2 the Consumer Awareness Survey. Students' answers to the test items and survey questions were recorded on optical-scan sheets. Students were asked to record the occupations of their parents and/or guardians on a separate sheet that was attached to their optical-scan sheet. The occupations were indexed by the researcher according to the Blishen socio-economic scale. The index was then entered on to the student's optical-scan sheet. (Refer to the description of the Blishen scale on page 34.)

## Description of Instruments

As stated in the review of the literature, there has been little or no research conducted to develop consumer competency tests in Canada. A decision was made to revise an established test and use it to measure the "competencies" of grades 9 and 11 students in Alberta.

The Test of Consumer Competencies established by Stanley (1976) was a representative and valid instrument for use in the US and one that could provide the basis for a similar instrument for use in Alberta, Canada.

For the sake of clarity between the original and revised forms of the Test of Consumer Competencies the following notation will be used: TCC-O refers to the original test developed by Stanley and TCC-R refers to the revised test developed for this study.

Procedural details of the test revision will follow a brief description of the original test. A description of the survey instrument developed for use in this study plus information on the Blishen Socio-Economic scale follow.

## Description of Stanley's Test of Consumer Competencies (TCC-O)

The Test of Consumer Competencies (TCC-O) is a standardized test designed to measure cognitive consumer knowledge in 14 areas of consumer education (Buros, 1978). It consists of two equivalent 55-item multiple choice tests based on 55 performance objectives.

The validity and reliability of TCC-O was established by Stanley (1976). Validity for TCC-O was based on a variety of performance objectives derived from the revised Guidelines for Consumer Education for the state of Illinois (Office of the Superintendent of Public Instruction, 1972). The number of test items allotted to each content area was based on the approximate coverage given to each item in state guidelines and in consumer education textbooks. The instruments were pre-tested on three occasions to determine the quality and discrimination of each item.

Norms for the final test forms were established by administering the instrument to 7,683 students in grades 8-12; 3,857 received Form A and

3,826 Form B instruments. Reliability was shown through the Kuder-Richardson formula number 20 figures which were 0.73 for Form A and 0.74 for Form B.

Development of the TCC-R (Form 1)

Initial revisions of the TCC-O (Form B) involved rewording of test questions that reflected American content or legislation so that comparable Canadian knowledge was being measured. Subsequent to these revisions the TCC-R was pilot tested with a sample of 100 students. The specific objectives of this pilot testing were to:

1. conduct an item analysis on the test results in order to provide:
   - 1.1 an overall reliability measure for the TCC-R
   - 1.2 point biserial correlations for each test item (i.e., item reliability)
   - 1.3 difficulty levels for each test item
   - 1.4 the discriminatory power of the correct response and distractors for each test item
2. verify the content validity of the TCC-R

Results from the Computing Services SCALSCOR and ITEMANAL programs indicated an overall KR-20 of r = .62. Difficulty levels and discriminatory indexes for each test item were comparable to those of the TCC-O. The somewhat low KR-20 value of TCC-R suggested that further consideration be given to the content validity of the instrument. Procedural details of the content validation follow.

Efforts were made by the researcher to ensure content validity by first searching Alberta curricula as a guide for specification of the

domain of "consumer education competencies". In Alberta, consumer education is not taught as a discrete discipline but is integrated into established subject matter courses. The domain lacked homogeneity so groupings of the domain employed by Stanley were used (i.e., 14 basic consumer education content areas).

In order to evaluate the representativeness of Stanley's objectives and test items for consumer education in Alberta, they were submitted to a panel of ten judges. Panel members were selected on the basis of their knowledge and contribution to consumer education in Alberta. The panel included people from each of the following areas: (federal and provincial) Consumer and Corporate Affairs; home economists; teachers; post-secondary instructors in consumer education and Alberta education consultants in home economics, business and vocational education.

The content validity of TCC-R was established in the following manner. Panel members independently rated each of the objectives and test items on a scale of 0-1-2 in terms of its importance and representativeness in measuring a specific content area plus its relevance to the Canadian situation. Instructions to the panel members plus the methods and charts used to tabulate and process this data appear in Appendix A.

The decision to retain the objectives and test items in the final consumer education test was made on the basis of the total rating given and the distribution of the ratings for each item. After a general inspection of the totals and distributions, the decision was made to retain all objectives and test items with a total rating of ten or larger. Items which received a total rating of ten were included in the

final test without further revisions, if the distribution of ratings showed a concensus among panel members. Distributions and totals were represented as follows for each of the objectives and test items... 2-6-2=10. The first digit indicates the number of panel members who rated the item as trivial or not important to the content area under which it was listed. The second digit indicates the number of panel members who rated the item as important to the content area. The third digit indicates those panel members who rated the item as very important to the content area. The fourth number is the total rating (0 times digit 1 plus 1 times digit 2 plus 2 times digit 3). Thus a test item with a distribution of 2-6-2 was retained, while an item with a distribution of 3-4-3 was revised despite the fact that both totals were 10. This technique of rating was used by Kozlow (1973) when he developed a Test of Scientific Attitude.

Based on the ratings and suggestions of the expert panel, eleven test items underwent revision. The revised test was pilot-tested a second time with a similar sample of students. Results from the SCALSCOR and ITEMANAL programs indicated a KR-20 of r = .60 on the second pilot test. Although the overall reliability of this test was lower than the first by .02, there were significantly higher positive correlations for the revised items in the sub-scale analysis. In view of these results it was decided that the content validity had been more firmly established and that the internal consistency may be improved with further test administrations.

The instrument, as revised for the second pilot testing, was used in the major data collection with a stratified sample of Edmonton Public and

Edmonton Separate students. The SCALSCOR and ITEMANAL programs indicated a final KR-20 of r = .72 in the major data collection with Edmonton students.

Consumer Awareness Survey (Form 2)

This survey was developed for the study. It was designed to collect situationally specific information and personal data from students. The questionnaire included 34 statements or questions. Response categories varied depending upon the type of information desired. Some categories required Yes-No answers, while others asked the student to check or rate alternatives.

The questionnaire was also pilot tested with approximately 100 students in order to validate the question format and response categories. Prior to this it was pre-tested on an interview basis with six students.

Revisions to the original survey were made based on the information gained in the piloting. Question wording was altered, response categories were collapsed, and the survey was re-designed to permit optical scoring.

Blishen's Socio-Economic Scale

One of the demographic variables to be used was socio-economic status. Students were asked on the Consumer Awareness Survey to provide information regarding the occupations of their parent(s) and/or guardians. Blishen's socio-economic index was used to code students' responses and to formulate S-E-S groups.

The Blishen scale was first developed in 1958 but has since been updated in 1961 and 1971. It is the only Canadian oriented measure of socio-economic status and only requires information about occupation in order to use the index (Blishen & McRoberts, 1976).

## Statistical Analysis of Data

Data from the tests and surveys were transferred to computer data files and were subsequently analyzed using Division of Educational Research Services (DERS, University of Alberta). Programs from the Statistical Package for Social Sciences (SPSS) (Nie, Hull, Jenkins, Steinbrenner & Bent, 1975) were used to summarize, describe and analyse the data gathered. The subprogram frequencies (Nie, et al., 1975, p. 194) was used to determine the basic distribution characteristics of the data. Demographic data and the mean scores of students on the TCC-R were then analyzed according to the research questions outlined in Chapter I.

Research Question #1: What are the areas of strength and weakness of Alberta students' consumer knowledge as measured by the TCC-R?

The subprogram frequencies was used to report frequency distributions and mean scores for the total test plus each of the 14 sub-tests (content areas). Frequencies, percentages and mean scores were used to indicate areas of strength and weakness of student consumer knowledge.

Research Question #2: Are there any differences between the consumer knowledge of students when selected variables, namely, grade, sex,

employment, socio-economic status, school program and perceived exposure to consumer eduation?

Consumer knowledge was reported as mean-scores measured by the TCC-R. The following null hypotheses were used in analyzing research question two. Significance levels unless otherwise stated were $p \leq 0.05$.

There will be no significant difference in the mean scores on TCC-R between:

$H_1$: grade 9 and grade 11 stduents.

$H_2$: students who work high, average and few hours per week as categorized from student responses to question 103 on Form 2.

$H_3$: consumer education aware students (CEAS) and consumer education unaware students (CEUS), disregarding sex, grade, program, S-E-S and employment.

$H_4$: male and female students.

$H_5$: high school students depending on the program in which they are enrolled.

$H_6$: high, middle and low socio-economic groups of students.

One-way analysis of variance (Nie, et al., 1975, p. 422) was used to test the significance of each of the above hypotheses.

The interaction effects of five independent variables were then examined to determine if any significant differences existed. The following hypotheses were used in studying this interaction.

$H_7$: Based on mean-scores of students on TCC-R there will be no significant interaction among:

$H_7a$: employment, perceived exposure to consumer education and socio-economic status.

$H_7b$: perceived exposure to consumer education, S-E-S, and grade

$H_7c$: employment, perceived exposure to consumer education and grade

$H_7d$: S-E-S, grade and employment

$H_7e$: employment, perceived exposure to consumer education and program.

$H_7f$: perceived exposure to consumer education, S-E-S, and program

$H_7g$: program, S-E-S, and employment.

$H_7h$: program, grade and employment

$H_7i$: program, grade and perceived exposure to consumer education

$H_7j$: S-E-S, program and grade

Three-way analysis of variance (Nie, et al., 1975, p. 410) was used to examine the inter-relationships of these variables.

Multiple classificaton analysis (MCA) (Nie, et al., 1975, p. 409) was used in conjunction with the ANOVA program to examine the relationship of the categories subsumed within each of the independent variables. This procedure indicates which categories are adding to or detracting from the grand mean.

Research Question #3: Is there a relationship between the consumer knowledge of students and their use of information sources?

Multiple regression (Nie, et al., 1975, p. 342) was used to analyze the effect of student use of consumer information sources on their mean scores obtained
on the TCC-R.

Research Question #4: Is there a relationship between the consumer knowledge of students and their reported behavior with regard to money management?

Multiple regression was similarly employed in analyzing the effect of student money management practices on their mean scores obtained on the TCC-R.

Both research questions three and four used the R-square statistic to explain the relationship between the independent variables (information sources and money management practices) and the dependent variable (mean scores on the TCC-R).

# CHAPTER IV

## RESULTS

The purpose of this study was to investigate the cognitive consumer knowledge of grade nine and eleven students in the Edmonton Public and Separate School Systems. Analysis of the data gathered through the administration of the Test of Consumer Competencies - Revised (TCC-R) and the Consumer Awareness Survey (CAS) will be presented in this chapter. Following a description of the sample, student consumer knowledge will be reported according to the research questions and hypotheses stated in Chapter III.

### Description of Sample

Data was collected from a sample of 664 secondary students and included 328 (49%) grade nine, 306 (46%) grade eleven, and 30 (5%) grade twelve students. Of the high school students sampled, 223 (34%) were in academic programs and 113 (17%) were in non-academic programs. Males (N=338) and females (N=326) were almost equally represented (51% and 49% respectively). Based on their responses to survey items 135 and 136 regarding parental and/or guardian occupations, students were given a S-E-S index according to the scale outlined by Blishen (1976). Upon inspection of the frequencies, mean, median, and range of responses, three S-E-S categories were created: category one (low S-E-S) included

indices from 20-50; category two (middle S-E-S) included indices from 51-65; and category 3 (high S-E-S) included indices from 66-75. Table 2 summarizes the breakdown of students by socio-economic status.

Student responses to the remaining survey questions are reported as frequencies and percentages directly on the CAS (Appendix C).

## Research Questions and Results

### Overall Student Knowledge on the TCC-R

The first research question considered the overall level of student achievement on the TCC-R as well as the areas of strength and weakness in their knowledge relative to the 14 sub-test (content) areas of the test. The overall mean achievement score on the 55-item test was 26.05 with a standard deviation of 6.24 and a standard error of measurement of 3.32. This converts to 52.1% correct on the 55-item test. These figures compare favorably with the norming data reported by Stanley (1976) with reference to students who "had not taken a specific course in consumer education" (Mean = 22.03; Standard deviation = 6.17; Standard Error of Measurement = 3.26). Table 3 shows the frequency distribution of the scores on the TCC-R. Data from Table 3 is shown in histogram form in Figure 1.

Specific results from the item analysis performed on the 55-item multiple-choice test appear in Appendix D. Contained in this data are test score means, difficulty levels, discriminatory power and point-biserial correlations for each test item. Proportions of the total student group scoring highest, middle and lowest on the total test are

Table 2

Categorization of Students into Three Socio-Economic Levels (N=615*)

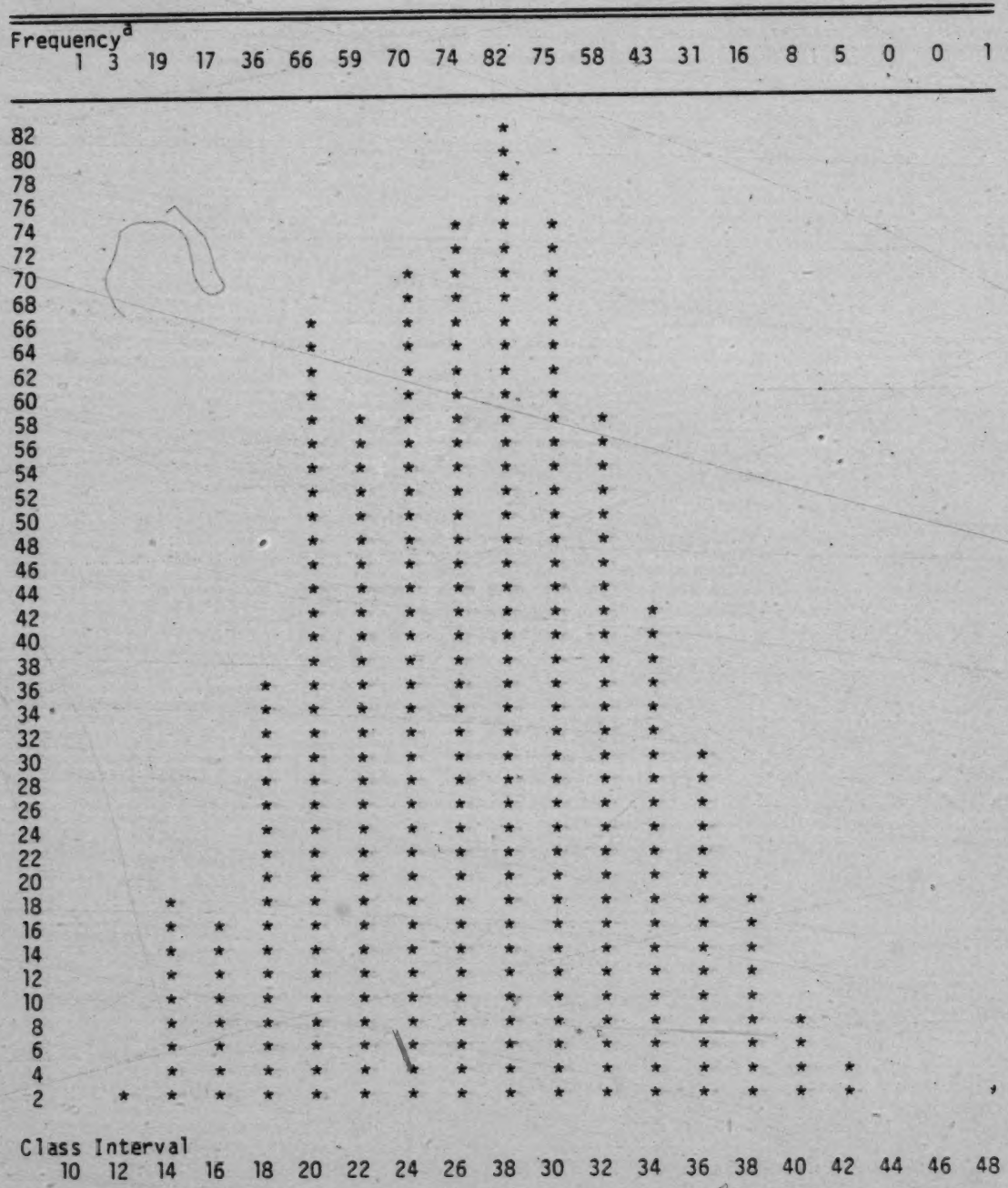
| Socio-Economic Status | Absolute Frequency | Relative Frequency (Percentage) |
|---|---|---|
| Low | 204 | 33.2 |
| Middle | 216 | 35.1 |
| High | 195 | 31.7 |
| Total | 615 | 100.0 |

*Note: 49 students did not respond to the questions regarding parental occupation.

Table 3

Frequency Distribution of Scores on the Test of Consumer Competencies-Revised (55 - Item Test (N=664)

| Score | Frequency | Z-Normal | Percentile Ranking | Cumulative Percent |
|---|---|---|---|---|
| 10 | 1 | -3.174 | 0.08 | 0.15 |
| 11 | 2 | -2.747 | 0.30 | 0.45 |
| 12 | 1 | -2.558 | 0.53 | 0.60 |
| 13 | 7 | -2.281 | 1.13 | 1.66 |
| 14 | 12 | -1.950 | 2.56 | 3.46 |
| 15 | 6 | -1.761 | 3.92 | 4.37 |
| 16 | 11 | -1.627 | 5.20 | 6.02 |
| 17 | 16 | -1.459 | 7.23 | 8.43 |
| 18 | 20 | -1.285 | 9.94 | 11.45 |
| 19 | 27 | -1.104 | 13.48 | 15.51 |
| 20 | 39 | -0.898 | 18.45 | 21.39 |
| 21 | 25 | -0.730 | 23.27 | 25.15 |
| 22 | 34 | -0.591 | 27.71 | 30.27 |
| 23 | 34 | -0.444 | 32.83 | 35.39 |
| 24 | 36 | -0.302 | 38.10 | 40.81 |
| 25 | 39 | -0.157 | 43.75 | 46.69 |
| 26 | 35 | -0.017 | 49.32 | 51.96 |
| 27 | 37 | 0.119 | 54.74 | 57.53 |
| 28 | 45 | 0.277 | 60.92 | 64.31 |
| 29 | 43 | 0.455 | 67.55 | 70.78 |
| 30 | 32 | 0.618 | 73.19 | 75.60 |
| 31 | 31 | 0.770 | 77.94 | 80.27 |
| 32 | 27 | 0.927 | 82.30 | 84.34 |
| 33 | 29 | 0.104 | 86.52 | 88.70 |
| 34 | 14 | 1.268 | 89.76 | 90.81 |
| 35 | 15 | 1.401 | 91.94 | 93.07 |
| 36 | 16 | 1.579 | 94.28 | 95.48 |
| 37 | 8 | 1.761 | 96.08 | 96.69 |
| 38 | 8 | 1.926 | 97.29 | 97.89 |
| 39 | 5 | 2.113 | 98.27 | 98.64 |
| 40 | 3 | 2.281 | 98.87 | 99.10 |
| 41 | 1 | 2.397 | 99.17 | 99.25 |
| 42 | 4 | 2.611 | 99.55 | 99.85 |
| 43 | 0 | 2.966 | 99.85 | 99.85 |
| 44 | 0 | 2.966 | 99.85 | 99.85 |
| 45 | 0 | 2.966 | 99.85 | 99.85 |
| 46 | 0 | 2.966 | 99.85 | 99.85 |
| 47 | 0 | 2.966 | 99.85 | 99.85 |
| 48 | 1 | 3.173 | 99.92 | 100.00 |




[a] Each * equals 2 points.

Figure 1

Histogram of Scores on the Test of Consumer Competency-Revised (55 - Item Test (N=664)

also included.

The analysis of the 14 sub-tests identified areas of strength and weakness in the cognitive consumer knowledge of students. Percentages reported reflect the mean scores of each subtest as presented in Table 4. Complete results from the sub-test analysis appear in Appendix E.

From the range of scores achieved by students in this sample, their knowledge appears strongest in the areas of furnishings and appliances (68%), recreation (67%), the individual consumer in the marketplace (60%), transportation (55%), and the consumer in society (50%). Student knowledge is moderately weak in the areas of clothing (49%), food (48%), consumer credit (46%), money management (44%), and insurance (42%). The areas in which students show the greatest weaknesses are health services, drugs and cosmetics (39%), housing (37%), taxes (32%), and savings and investments (27%). Appendix B contains the test questions and a list of the questions by content areas.

Student Consumer Knowledge and Selected Demographic Variables

Research question two addressed the differences in student consumer knowledge and selected demographic variables by testing the hypotheses outlined in Chapter III. The reported overall mean scores of students on the TCC-R (the dependent variable) were considered with the independent variables of grade, sex, program, S-E-S, hours of employment, and perceived exposure to consumer education. The $p \leq 0.05$ level was used in testing the significance of the F statistic.

Table 4

Means, Frequencies, Percents and Ranges on Each of the 14 Subtests of the TCC-R (N=664)

| Sub Test Area | Mean | Percent | Absolute Frequency | Relative Frequency (Percent) | Number of Items in Subtest |
|---|---|---|---|---|---|
| Individual Consumer in the Marketplace | 3.00 | (60%) | 257 | 38.7 | 5 |
| Money Management | *1.76 | (44%) | 212 | 31.9 | 4 |
| Consumer Credit | 2.33 | (46%) | 220 | 33.1 | 5 |
| Housing | 1.47 | (37%) | 278 | 41.9 | 4 |
| Food | 1.45 | (48%) | 269 | 40.5 | 3 |
| Transportation | *1.66 | (55%) | 218 | 32.8 | 3 |
| Clothing | 1.48 | (49%) | 251 | 37.8 | 3 |
| Health Services, Drugs and Cosmetics | 1.57 | (39%) | 217 | 32.7 | 4 |
| Recreation | 2.01 | (67%) | 268 | 40.4 | 3 |
| Furnishings and Appliances | 2.05 | (68%) | 253 | 38.1 | 3 |
| Insurance | 2.10 | (42%) | 211 | 31.8 | 5 |
| Savings and Investments | 1.08 | (27%) | 278 | 41.9 | 4 |
| Taxes | 1.29 | (32%) | 253 | 38.1 | 4 |
| Consumer in Society | *2.50 | (50%) | 194 | 29.2 | 5 |

* The mode response for the sub-tests marked with an asterisk may be more typically representative. In those instances the mode responses were Money Management, Mode = 2.00, N=218; Transportation, Mode = 2.00, N=314; Consumer in Society, Mode = 3.00, N=210.

Hypothesis 1:

> There is no significant difference in the mean scores of students on the TCC-R dependent upon their weekly hours of employment.

Hours of weekly employment were grouped into five categories: 0 hours of employment, 1-5 hours, between 6-12 hours, between 13-20 hours, and over 20 hours (Table 5). Analysis of variance (Nie, et al., 1975, p. 422) was used on the five categories to determine if differences among the groups were significant. The F-ratio of 5.604 ($p = 0.0002$) indicated a significant difference in the mean scores of students for the five categories (Table 6). This hypothesis must therefore be rejected.

Scheffé a posteriori comparisons ($p \leq .10$) indicated that significant differences in mean scores were apparent between two categories. Students who work from 13 to 20 hours scored significantly higher than those students who did not work at all. Although the differences were not significant in the other categories, as the weekly hours of student employment increased (up to 20 hours) so did their mean scores on the TCC-R. This finding is contrary to Litro's study (1969) in which levels of consumer understanding were not found to be related to their work experience.

Hypothesis 2:

> There is no significant difference in the mean scores of grade 9 and 11 students on the TCC-R.

The students sampled comprised three grade categories: grade 9, grade 11 and grade 12. Descriptive statistics for grades 9 and 11 appear in Table 7. Analysis of variance determined that significant differences existed between groups (Table 8). Descriptive statistics for grades 9,

Table 5

Mean Scores, Standard Deviations and Percentages for the Categories of Hours of Weekly Employment (N=658)

| Weekly Hours of Employment | N | Mean | Standard Deviation | Minimum | Maximum | 95% Confidence Interval for Mean |
|---|---|---|---|---|---|---|
| 0 | 358 | 24.91 | 5.88 | 10.00 | 42.00 | 24.30 to 25.53 |
| 1-5 | 59 | 25.95 | 6.56 | 10.00 | 37.00 | 24.24 to 27.66 |
| 6-12 | 116 | 26.42 | 6.30 | 12.00 | 48.00 | 25.26 to 27.58 |
| 13-20 | 72 | 28.20 | 6.58 | 14.00 | 43.00 | 26.66 to 29.76 |
| 20+ | 53 | 27.19 | 6.40 | 15.00 | 42.00 | 25.42 to 28.95 |
| Total | 658 | 25.82 | 6.23 | 10.00 | 48.00 | 25.34 to 26.29 |

Table 6

Analysis of Variance of Students' Mean Scores on the TCC-R for the Categories of Hours of Weekly Employment (N=657)

| Source | df | Sum of Squares | Mean Squares | F |
|---|---|---|---|---|
| Between | 4 | 845.462 | 211.365 | 5.604* |
| Within | 653 | 24628.157 | 37.715 | |
| Total | 657 | 25473.617 | | |

Significant at p = 0.0002

Table 7

Mean Scores, Standard Deviations and Percentages for Grades 9 and 11 (N=634)

| Grade | N | Mean | Standard Deviation | Minimum | Maximum | 95% Confidence Interval for Mean |
|---|---|---|---|---|---|---|
| 9 | 328 | 23.23 | 5.74 | 10.00 | 48.00 | 22.61 to 23.86 |
| 11 | 306 | 28.42 | 5.79 | 12.00 | 43.00 | 27.79 to 29.04 |
| Total | 634 | 25.74 | 6.22 | 10.00 | 48.00 | 25.25 to 26.22 |

Table 8

Analysis of Variance of Students' Mean Scores on the TCC-R for Grades 9 and 11 (N=633)

| Source | df | Sum of Squares | Mean Squares | F |
|---|---|---|---|---|
| Between | 1 | 4258.941 | 4258.937 | 132.86* |
| Within | 632 | 20258.824 | 32.055 | |
| Total | 633 | 24517.761 | | |

Significant at p = 0.0000

11 and 12 appear in Table 9. Analysis of variance determined that significant differences on mean scores existed among groups in this analysis as well (Table 10). This hypothesis must therefore be rejected.

Grade level does have a significant effect on the consumer knowledge of students as measured by mean scores on the TCC-R. Both grade 11 and 12 students score significantly higher than grade nines. This finding is supported by the studies of the Massachusetts Sate Department of Education (1977), Davis (1977), Seymour (1975), and McCall (1973). Scheffé a posteriori comparisons ($p \leq .10$) indicated significant differences between the mean scores of grade 9 and both grade 11 and 12 students. No significant difference was found in the mean scores of grade 11 and grade 12 students.

Hypothesis 3:

> There is no significant difference between the mean scores on the TCC-R of students who do or do not perceive exposure to consumer education.

Students were asked whether or not they perceived being exposed to consumer education in their school program. Their responses to this question (item 133, CA Survey, Appendix C) allowed for the creation of two categories: 1) CEAS, those who perceived being exposed to consumer education, and 2) CEUS, those who did not perceive exposure to consumer education (Table 11). Analysis of variance was conducted and a significant difference between the groups was found (Table 12). This hypothesis must therefore be rejected.

Those students who perceived exposure to consumer education scored significantly higher on the TCC-R than those students who did not

Table 9

Mean Scores, Standard Deviations and Percentages for Grades 9, 11 and 12 (N=664)

| Grade | N | Mean | Standard Deviation | Minimum | Maximum | 95% Confidence Interval for Mean |
|---|---|---|---|---|---|---|
| 9 | 328 | 23.23 | 5.74 | 10.00 | 48.00 | 22.61 to 23.86 |
| 11 | 306 | 28.42 | 5.58 | 12.00 | 43.00 | 27.79 to 29.04 |
| 12 | 30 | 27.03 | 6.33 | 12.00 | 41.00 | 24.67 to 29.39 |
| Total | 664 | 25.79 | 5.69 | 10.00 | 48.00 | 25.67 to 26.27 |

Table 10

Analysis of Variance of Students' Mean Scores on the TCC-R for Grades 9, 11 and 12 (N=663)

| Source | df | Sum of Squares | Mean Squares | F |
|---|---|---|---|---|
| Between | 2 | 4306.975 | 2153.487 | 66.455* |
| Within | 661 | 21419.788 | 32.405 | |
| Total | 663 | 25726.761 | | |

Significant at p = 0.0000

Table 11

Mean Scores, Standard Deviations and Percentages for the Categories of Perceived Exposure to Consumer Education (N=637)

| Consumer Education Exposure | N | Mean | Standard Deviation | Minimum | Maximum | 95% Confidence Interval for Mean |
|---|---|---|---|---|---|---|
| CEAS - perceived exposure | 376 | 26.39 | 6.23 | 10.00 | 43.00 | 27.75 to 27.02 |
| CEUS - no perceived exposure | 261 | 24.81 | 6.06 | 10.00 | 48.00 | 24.24 to 25.72 |
| Total | 637 | 25.81 | 6.20 | 10.00 | 48.00 | 25.33 to 26.29 |

Table 12

Analysis of Variance of Students' Mean Scores on the TCC-R for the Categories of Perceived Exposure to Consumer Education (N=636)

| Source | df | Sum of Squares | Mean Squares | F |
|---|---|---|---|---|
| Between | 1 | 304.010 | 304.010 | 8.004* |
| Within | 635 | 24119.195 | 37.983 | |
| Total | 636 | 24423.203 | | |

Significant at p = 0.0048

perceive exposure to consumer education. Significant differences in students' competency (knowledge) were viewed as outcomes of taking consumer education courses by Langrehr (1979), Seymour (1975) and McCall (1973) as well.

Hypothesis 4:

> There is no significant difference in the mean scores of male and female students on the TCC-R.

One-way analysis of variance was used to determine any significant differences between groups (Table 13). A significant difference was found and is reported in Table 14. This hypothesis must therefore be rejected. The mean scores of males on the TCC-R are significantly higher than those of females. This is in agreement with Garman (1979), the Massachusetts State Department of Education (1977), Seymour (1975), and McCall (1973).

Hypothesis 5:

> There is no significant difference in the mean scores of high school students dependent upon the program in which they were enrolled.

High school students were grouped into two categories: 1) those in academic programs and 2) those in non-academic programs (Table 15). Analysis of variance was used to determine any significant differences between groups. A significant difference was found (Table 16). This hypothesis must therefore be rejected. Students in academic programs had higher mean scores on the TCC-R than students in non-academic programs. This finding is supported by that of Litro (1969).

Table 13

Mean Scores, Standard Deviations and Percentages on the TCC-R for Male and Female Students
(N=664)

| Sex | N | Mean | Standard Deviation | Minimum | Maximum | 95% Confidence Interval for Mean |
|---|---|---|---|---|---|---|
| Male | 338 | 26.51 | 6.43 | 10.00 | 43.00 | 25.82 to 27.19 |
| Female | 326 | 25.06 | 5.94 | 12.00 | 48.00 | 24.41 to 25.71 |
| Total | 664 | 25.80 | 6.23 | 10.00 | 48.00 | 25.32 to 26.27 |

Table 14

Analysis of Variance of Students' Mean Scores on the TCC-R for Male and Female Students
(N=663)

| Source | df | Sum of Squares | Mean Squares | F |
|---|---|---|---|---|
| Between | 1 | 349.194 | 349.194 | 9.109* |
| Within | 662 | 25377.523 | 38.335 | |
| Total | 663 | 25726.715 | | |

Significant at p = 0.0026

Table 15

Mean Scores, Standard Deviations and Percentages on the TCC-R for the Categories of High School Program (N=336)

| Program | N | Mean | Standard Deviation | Minimum | Maximum | 95% Confidence Interval for Mean |
|---|---|---|---|---|---|---|
| Academic | 223 | 29.63 | 5.38 | 12.00 | 43.00 | 28.92 to 30.34 |
| Non-Academic | 113 | 25.66 | 5.27 | 12.00 | 37.00 | 24.68 to 26.65 |
| Total | 336 | 28.30 | 5.65 | 12.00 | 43.00 | 27.69 to 28.90 |

Table 16

Analysis of Variance of Students' Mean Scores on the TCC-R for the Categories of High School Program (N=335)

| Source | df | Sum of Squares | Mean Squares | F |
|---|---|---|---|---|
| Between | 1 | 1181.208 | 1181.208 | 41.429* |
| Within | 334 | 9522.924 | 28.512 | |
| Total | 335 | 10704.129 | | |

Significant at p = 0.0000

Hypothesis 6:

> There is no significant difference between the mean scores of high, middle and low socio-economic groups of students on the TCC-R.

Students were grouped into three socio-economic categories (Table 17): category 1 includes S-E-S indices 20-50; category 2 includes S-E-S indices 51-65; and category 3 includes S-E-S indices 66-75. An index of 20 indicates low S-E-S whereas an index of 75 indicates high S-E-S. Analysis of variance was used to determine any significant differences among the groups. Significant differences were found (Table 18). This hypothesis must therefore be rejected.

Significant differences on mean scores are apparent among S-E-S levels. This is in agreement with Litro's findings (1969). Means scores on the TCC-R increase as socio-economic status increases. A Scheffé a posteriori test ($p \leq 0.10$) indicated significant differences in the mean scores between low and middle S-E-S students as well as low and high S-E-S students but not between middle and high S-E-S students.

Hypotheses $7_a$ through $7_g$

Interaction effects among the possible combinations of five independent variables (grade, S-E-S, program, hours of employment and perceived exposure to consumer education) were tested for significance using three-way analysis of variance (Nie, et al., 1975, p. 410). The findings of the three-way analyses are reported using the usual analysis

Table 17

Mean Scores, Standard Deviations and Percentages on the TCC-R for the Categories of Socio-Economic Status (S-E-S)
(N=615)

| S-E-S | N | Mean | Standard Deviation | Minimum | Maximum | 95% Confidence Interval for Mean |
|---|---|---|---|---|---|---|
| Low | 204 | 24.59 | 6.10 | 10.00 | 39.00 | 23.75 to 25.43 |
| Middle | 216 | 26.43 | 6.19 | 10.00 | 48.00 | 25.60 to 27.26 |
| High | 195 | 27.07 | 5.84 | 12.00 | 39.00 | 26.24 to 27.89 |
| Total | 615 | 26.02 | 6.13 | 10.00 | 48.00 | 25.53 to 26.51 |

Table 18

Analysis of Variance of Students' Mean Scores on the TCC-R for the Categories of Socio-Economic Status
(N=614)

| Source | df | Sum of Squares | Mean Squares | F |
|---|---|---|---|---|
| Between | 2 | 665.426 | 332.713 | 9.089* |
| Within | 612 | 22401.797 | 36.604 | |
| Total | 614 | 23067.223 | | |

Significant at p = 0.0001

of variance statistics plus multiple classification analysis[1] (MCA) (Nie, et al., 1975, p. 409). Whereas analysis of variance techniques indicate whether or not the mean of at least one category of the variable is different from the "grand mean", MCA examines the pattern of the relationship of the independent variable categories to the dependent variable.It was the intent of this study to investigate ten interaction effects as outlined in hypotheses $7_a$ to $7_j$ in Chapter III. Interaction analysis on hypotheses $7_h$, $7_i$ and $7_j$ was not possible because of disproportionate cell frequencies.

Hypothesis $7_a$:

> Based on the mean scores of students on the TCC-R there will be no significant interaction between S-E-S, hours of employment and perceived exposure to consumer education.

Students were first grouped according to three S-E-S categories, then according to five categories of weekly hours of employment, and finally according to two categories of perceived exposure to consumer education (Table 25, Appendix F). Categories were delineated as described in hypotheses 1-6. Analysis of variance with MCA was used to determine whether any significant interaction effects existed. No significant interaction was founded and this hypothesis was therefore accepted (Table 26, Appendix F).

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[1]Note: MCA effectively displays results of an analysis of variance particularly when the interaction effects were not significant. MCA examines the pattern of changes in a given variable as more variables are introduced. Thus it can be determined whether categories within the independent variables are having a positive or negative effect on the grand mean. In addition, the obtained $R^2$ statistic represents the proportion of variation in mean scores than can be explained by the interaction (additive) effects of all the independent variables.

The MCA statistic $R^2$ revealed that only seven percent (7%) of the variation in students mean scores can be explained by the interaction of the three variables in $H7_a$. Specific findings were that:

1) an increase in the socio-economic level increases the positive contribution to the grand mean;
2) levels of hours of employment contribute positively to the grand mean up to category four (13-20 hours) then there is a slight decrease in contribution for category five (more than 20 hours);
3) scores of CEA-students contribute positively to the grand mean whereas scores of CEU-students contribute negatively (Table 28, Appendix F).

Hypothesis $7_b$:

> Based on the mean scores of students on the TCC-R there will be no significant interaction between S-E-S, grade, and perceived exposure to consumer education (CEAS/CEUS).

Students were grouped into S-E-S and perceived exposure categories as described under hypothesis $7_a$. Three categories of grade were employed (Table 19). Analysis of variance was used to determine whether any significant interaction effects existed. No significant three-way interaction was found; however, significant two-way interaction at the $p \leq 0.05$ level was found. This hypothesis is therefore only partially accepted. The F-ratio for the overall two-way interactions was $F = 1.960$ ($p = 0.049$). The additive effect of S-E-S with grade ($F = 2.938$, $p = 0.020$) was the principle contributor to the overall significance of the two-way interaction (Table 20).

Table 19

Mean Scores of Students on the TCC-R Classed Under Different Grade, S-E-S, and Perceived Exposure to Consumer Education Categories (N=595)

CEA - Students

| Socio-Economic Status | Grades 9 | 11 | 12 |
|---|---|---|---|
| Low | 21.69 ( 48) | 28.24 ( 72) | 24.00 ( 1) |
| Middle | 23.48 ( 44) | 28.33 ( 63) | 30.06 ( 16) |
| High | 25.41 ( 41) | 29.31 ( 62) | 24.00 ( 6) |

CEU - Students

| Socio-Economic Status | Grades 9 | 11 | 12 |
|---|---|---|---|
| Low | 21.79 ( 56) | 26.83 ( 18) | 24.33 ( 3) |
| Middle | 24.50 ( 52) | 27.58 ( 33) | 27.00 ( 1) |
| High | 25.29 ( 51) | 28.21 ( 28) | 0.00 ( 0) |

Note. Cell totals given in parentheses.

Table 20

Analysis of Variance of Students' Mean Scores
on the TCC-R
(N=595)

| Source of Variation | Sum of Squares | df | Mean Square | F | Significance of F |
|---|---|---|---|---|---|
| Main Effects | 3746.427 | 5 | 749.285 | 24.451 | 0.000 |
| SES | 519.880 | 2 | 259.940 | 8.483 | 0.000 |
| Grade | 2763.321 | 2 | 1381.660 | 45.087 | 0.000 |
| V33[a] | 18.623 | 1 | 18.623 | 0.608 | 0.436 |
| 2-Way Interactions | 480.479 | 8 | 60.060 | 1.960 | 0.049 |
| SES Grade | 360.093 | 4 | 90.023 | 2.938 | 0.020 |
| SES V33 | 15.149 | 2 | 7.574 | 0.247 | 0.781 |
| Grade V33 | 65.976 | 2 | 32.988 | 1.076 | 0.341 |
| 3-Way Interactions | 10.777 | 3 | 3.592 | 0.117 | 0.950 |
| SES Grade V33 | 10.777 | 3 | 3.592 | 0.117 | 0.950 |
| Between | 4237.684 | 16 | 264.855 | 8.643 | 0.000 |
| Within | 17712.383 | 578 | 30.644 | | |
| Total | 21950.066 | 594 | 36.953 | | |

[a]V33 = perceived exposure to consumer education programs in school.

Multiple classification analysis of all the interaction effects (Table 21) revealed that:

1) an increase in socio-economic level increases the positive contribution to the grand mean;
2) the scores of grade nine students have a negative effect on the grand mean whereas the scores of grade eleven and twelve students contribute positively; and
3) scores of CEA-students contribute positively to the grand mean but scores of CEU-students contribute negatively.

The $R^2$ statistic indicated that 17% of the variation in students' mean scores can be explained by the interaction of the three variables in $H7_b$ (Table 21).

Hypothesis $7_c$:

> Based on the mean scores of students on the TCC-R there will be no significant interaction between perceived exposure to consumer education, hours of employment and grade.

Students were grouped into two categories of perceived exposure to consumer education, five categories of hours of employment and three categories of grade (Table 28, Appendix F). Analysis of variance was used to verify the presence of any significant interaction effects. No significant interaction was found. Hypothesis $7_c$ was therefore accepted (Table 29, Appendix F). The previous trends of the variables perceived exposure to consumer education, hours of employment and grade level to contribute positively toward the grand mean existed in this interaction as well. Overall $R^2$ indicated that 17% of the

Table 21

Summary of Multiple Classification Analysis
of Students' Mean Scores on the TCC-R
(N=595)

| Variable & Category | N | Unadjusted Dev'n | ETA | Adjusted for Independents Dev'n | BETA |
|---|---|---|---|---|---|
| SES | | | | | |
| Low | 198 | -1.38 | | -1.25 | |
| Middle | 209 | 0.37 | | 0.26 | |
| High | 188 | 1.04 | | 1.03 | |
| | | | 0.17 | | 0.15 |
| Grade | | | | | |
| 9 | 292 | -2.36 | | -2.28 | |
| 11 | 276 | 2.33 | | 2.27 | |
| 12 | 27 | 1.75 | | 1.44 | |
| | | | 0.38 | | 0.37 |
| V33[a] | | | | | |
| Yes | 353 | 0.63 | | 0.15 | |
| No | 242 | -0.92 | | -0.22 | |
| | | | 0.13 | | 0.03 |
| Multiple $R^2$ | | | | | 0.171 |
| Multiple R | | | | | 0.413 |

[a]V33 = perceived exposure to consumer education.

Note: Grand mean in this analysis = 25.99.

variation in students mean scores can be explained by the interaction of the three variables in $H7_c$ (Table 30, Appendix F).

Hypothesis $7_d$:

> Based on the mean scores of students on the TCC-R there will be no significant interaction between S-E-S, grade, and hours of employment.

Students were classified into three S-E-S levels, three grades and five categories of hours of employment (Table 22). Analysis of variance was used to determine whether any significant interaction effects existed. No significant three-way interaction was found; however, significant two-way interaction at the $p \leq 0.05$ level was noted. This hypothesis was therefore not completely accepted.

The F-ratio for the overall two-way interaction was $F = 1.954$ ($p = 0.008$). The interactions that contributed to the two-way significance were those of S-E-S with hours of employment ($F = 1.932$, $p = 0.053$) and grade with hours of employment ($F = 2.107$, $p = 0.033$) (Table 23).

Multiple classification analysis uncovered the same trends in the contribution of S-E-S, grade and hours of employment to the grade mean as reported for the previous hypotheses. The $R^2$ statistic denoted that 18% of the variation in students' mean scores can be attributed to the interaction of the three variables in $H7_d$ (Table 24).

Hypothesis $7_e$:

> Based on mean scores of students on the TCC-R there will be no significant interaction among program, hours of employment and perceived exposure to consumer education.

Table 22

Mean Scores of Students on the TCC-R Classed Under Different S-E-S, Grade and Employment Categories (N=611)

| Grade Nine Students | | | | | |
|---|---|---|---|---|---|
| | Hours of Employment | | | | |
| Socio-Economic Status | 0 | 1-5 | 6-12 | 13-20 | 20+ |
| Low | 21.35 ( 82) | 25.00 ( 8) | 22.25 ( 8) | 20.50 ( 4) | 23.00 ( 4) |
| Middle | 23.85 ( 67) | 20.91 ( 11) | 27.50 ( 12) | 24.25 ( 4) | 24.67 ( 3) |
| High | 24.75 ( 59) | 27.29 ( 14) | 26.41 ( 17) | 23.00 ( 1) | 20.00 ( 3) |

| Grade Eleven Students | | | | | |
|---|---|---|---|---|---|
| | Hours of Employment | | | | |
| Socio-Economic Status | 0 | 1-5 | 6-12 | 13-20 | 20+ |
| Low | 28.29 ( 38) | 28.25 ( 4) | 26.00 ( 21) | 29.79 ( 14) | 27.41 ( 17) |
| Middle | 27.74 ( 42) | 26.80 ( 5) | 27.45 ( 22) | 28.70 ( 20) | 32.55 ( 11) |
| High | 29.00 ( 36) | 30.75 ( 8) | 28.38 ( 26) | 30.67 ( 15) | 27.75 ( 8) |

| Grade Twelve Students | | | | | |
|---|---|---|---|---|---|
| | Hours of Employment | | | | |
| Socio-Economic Status | 0 | 1-5 | 6-12 | 13-20 | 20+ |
| Low | 0.0 (0) | 0.0 (0) | 28.00 ( 1) | 24.00 ( 1) | 25.00 ( 1) |
| Middle | 27.89 ( 9) | 33.00 ( 2) | 19.50 ( 2) | 36.00 ( 3) | 28.00 ( 2) |
| High | 23.75 ( 4) | 0.0 (0) | 21.00 ( 1) | 0.0 ( 0) | 28.00 ( 1) |

Note. Cell totals in parentheses.

Table 23

Analysis of Variance of Students' Mean Scores
on the TCC-R
(N=611)

| Source of Variation | Sum of Squares | df | Mean Square | F | Significance of F |
|---|---|---|---|---|---|
| Main Effects | 4224.055 | 8 | 528.007 | 17.628 | 0.000 |
| SES | 543.510 | 2 | 271.755 | 9.073 | 0.000 |
| Grade | 2611.333 | 2 | 1305.667 | 43.590 | 0.000 |
| V3[a] | 176.880 | 4 | 44.220 | 1.476 | 0.208 |
| 2-Way Interactions | 1170.754 | 20 | 58.538 | 1.954 | 0.008 |
| SES Grade | 177.703 | 4 | 44.426 | 1.483 | 0.206 |
| SES V3 | 463.008 | 8 | 57.876 | 1.932 | 0.053 |
| Grade V3 | 504.992 | 8 | 63.124 | 2.107 | 0.033 |
| 3-Way Interactions | 359.117 | 12 | 29.926 | 0.999 | 0.448 |
| SES Grade V33 | 359.117 | 12 | 29.926 | 0.999 | 0.448 |
| Between | 5753.926 | 40 | 143.848 | 4.802 | 0.000 |
| Within | 17073.258 | 570 | 29.953 | | |
| Total | 22827.184 | 610 | 37.422 | | |

[a]V3 = weekly hours of employment.

Table 24

Summary of Multiple Classification Analysis
of Students' Mean Scores on the TCC-R
(N=611)

| Variable & Category | N | Unadjusted Dev'n | ETA | Adjusted for Independents Dev'n | BETA |
|---|---|---|---|---|---|
| SES | | | | | |
| Low | 203 | -1.42 | | -1.27 | |
| Middle | 215 | 0.40 | | 0.26 | |
| High | 193 | 1.05 | | 1.05 | |
| | | | 0.17 | | 0.16 |
| Grade | | | | | |
| 9 | 297 | -2.45 | | -2.28 | |
| 11 | 287 | 2.40 | | 2.26 | |
| 12 | 27 | 1.41 | | 1.02 | |
| | | | 0.39 | | 0.36 |
| V3[a] | | | | | |
| 0 hours | 337 | -1.00 | | -0.35 | |
| 1-5 hours | 52 | 0.33 | | 0.75 | |
| 6-12 hours | 110 | 0.63 | | -0.22 | |
| 13-20 hours | 62 | 2.75 | | 1.24 | |
| 20+ | 50 | 1.58 | | 0.55 | |
| | | | 0.21 | | 0.09 |
| Multiple $R^2$ | | | | | 0.185 |
| Multiple R | | | | | 0.430 |

[a] V3 = weekly hours of employment

Note: The grand mean in this analysis = 26.04.

Students were classified into two program categories (academic and non-academic), five categories of hours of employment and two categories of perceived exposure to consumer education (CEAS/CEUS) (Table 31, Appendix F). Analysis of variance was used to confirm whether any significant interaction effects existed. No significant interaction was found. Hypothesis $7_e$ was therefore accepted (Table 32, Appendix F). The previous trends of hours of employment and perceived exposure to consumer education toward positive and negative contribution to the grand mean existed in this interaction as well. In addition, the scores of academic students contributed positively to the grand mean whereas the scores of non-academic students contributed negatively. The $R^2$ statistic showed that 14% of the variation in students mean scores can be explained by the interaction of the three variables in the $H7_e$ (Table 33, Appendix F).

Hypothesis $7_f$:

> Based on the mean scores of students on the TCC-R there will be no significant interaction between S-E-S, program and perceived exposure to consumer education.

Students were grouped into three S-E-S levels, two program categories, and two categories of perceived exposure to consumer education (Table 34, Appendix F). Analysis of variance was used to ascertain whether any significant interactions were found. No significant differences were found. Hypothesis $7_f$ was therefore accepted (Table 36, Appendix F).

Similar trends were manifested in the positive and negative contribution of these variables to the grand mean as were noted in previous MCA interaction analysis. The overall $R^2$ denoted that 13% of the variation on students' mean scores can be attributed to the interaction of the three variables in $H7_f$ (Table 36, Appendix F).

Hypothesis $7_g$:

> Based on mean scores of students on the TCC-R there will be no significant interaction between S-E-S, program and hours of employment.

Students were grouped into three S-E-S levels, two program categories and five categories of hours of employment (Table 37, Appendix F). Analysis of variance was used to substantiate the presence of any significant interaction effects. No significant interaction was found. Hypothesis $7_g$ was therefore accepted (Table 38, Appendix F).

The variables of S-E-S and program continued to contribute to the grand mean as in previous interaction analyses. One difference was noted. The effect of 6 - 12 hours of employment had a negative contribution whereas its effect in all other analyses had been positive. The $R^2$ statistic revealed that 13% of the variation in students' mean scores can be attributed to the interaction of the three variables in $H7_g$ (Table 39, Appendix F).

## Student Consumer Knowledge and Their Use of Consumer Information Sources

Research question three examined the relationship between students' consumer knowledge and their use of information sources through multiple

regression analysis (Nie et al., 1975, p. 328). In this analysis the dependent (or criterion) variable was students' mean scores on the TCC-R. The independent (or predictor) variables were consumer information sources, namely: school program, family, friends, sales personnel/in-store promotionals, media, and consumer magazines.

The information sources section of the CAS asked respondents to rate how often each information source was used when purchasing a major item, with a possible range of 1-3 on the rating scale (Table 40, Appendix F). The students' use-of-consumer information rating for each independent variable was related to their mean score on the TCC-R in hypothesis 8.

Hypothesis 8:

> Variation in the mean scores of students on the TCC-R is not significantly explained by their use of consumer information sources.

The multiple regression $R^2$ statistic was used to report the amount of variation in students' mean scores that can be explained by the dependence upon the use of information variables operating jointly. It was found that student use of consumer information sources do not significantly predict or explain the variability in students' mean scores on the TCC-R (Table 41, Appendix F). This hypothesis is therefore accepted.

The $R^2$ statistic indicated that only 8% of the variation in students' mean scores can be explained by their use of consumer information sources. Two particularly interesting trends were noticed with the use of school program and sales people/in-store promotional

variables. The use of information from school program had an inverse relationship to students' mean scores on the TCC-R (i.e., students who indicated that they "never" used information from school programs tended to have higher mean scores). The use of sales people/in-store promotionals also had a strong but negative relationship to students' mean scores.

Student Consumer Knowledge and Their Money Management Practices

Research question four examined the relationship between students' consumer knowledge and their money management practices through multiple regression analysis (Nie, et al., 1975, p. 328). The dependent (criterion) variable was students' means scores on the TCC-R. The independent variables were students' reported money management practices regarding: consultation with parents, accounting for expenditures, accounting for savings, use of bank accounts, use of personal credit cards, and use of parent's credit cards (Table 42, Appendix F). Student responses to each of the money management practices were related their mean scores on the TCC-R in hypothesis 9.

Hypothesis 9:

> Variation in the mean score of students on the TCC-R is not significantly explained by their money management practices.

The multiple regression $R^2$ statistic was used to report the amount of variation in students' mean scores that can be explained by the dependence on the effects of the money management variables operating jointly. It was found that the money management practice of students do

not significantly predict or explain the variability in students' mean scores on the TCC-R (Table 43, Appendix F). This hypothesis was therefore accepted.

The $R^2$ statistic indicated that money management practices explained only 11% of the variation in student's mean scores on the TCC-R. Most of the variation was explained by two variables; namely, 1) whether the student had a savings/chequeing account, which contributed 5%, and 2) whether the student could accurately account for their savings, which contributed 3%.

## Additional Findings

Of particular interest were the findings regarding students' use of consumer information sources, their money management practices and the courses which they perceived to be offering consumer education. Students most frequently used family (90%), friends (88%), and media (79%) as information sources. Information sources that were less frequently used by students were: sales people (75%), consumer magazines (64%), and school program (47%).

The most frequently used money management techniques included having a savings/chequeing account (78%), being able to account for monthly savings (77%), and being able to account for monthly expenditures (68%). Few students used their own or parental credit as a way of handling money; 14% and 26% respectively.

It was interesting to note that CEA-students perceived consumer education to be a part of the following courses: business education

(28%), home economics (32%), social studies (28%), guidance (7%), and explicitly consumer-focused program (4%).

Complete details regarding the frequency of student responses to all the items on the Consumer Awarness Survey appear in Appendix C.

## Summary

The overall mean score achieved by the 664 junior and senior high school students sampled was 26.05 or 52% correct on the 55-item test. Students were most knowledegable in the areas of 1) individual consumer in the marketplace, 2) transportation, 3) recreation, and 4) furnishings and appliances while evidencing the least knowledge in the areas of 1) housing, 2) health services, drug and cosmetics, 3) insurance, 4) savings and investments, and 5) taxes.

One-way analysis of variance indicated that mean scores of students on the TCC-R are significantly affected by the following factors.

| | | |
|---|---|---|
| 1) | Grade: | Grade elevens and twelves scored higher than grade nines ($F = 66.455$, $p = 0.0000$). No significant difference was denoted between the scores of grade eleven and twelve students. |
| 2) | Program: | Students in academic programs scored higher than those in non-academic programs ($F = 41.429$, $p = 0.0000$). |
| 3) | Socio-economic status (S-E-S): | Students of high and middle S-E-S scored significantly higher than students of low S-E-S ($F = 9.089$, $p = 0.0001$). |
| 4) | Perceived exposure to consumer education (CEAS/CEUS): | CEA - students scored significantly higher than CEU-students ($F = 8.004$, $p = 0.0048$). |

5) Hours of employment: Students who work from 13 - 20 hours per week scored significantly higher than students who did not work at all ($F = 5.604$; $p = 0.0002$). (No significant differences in mean scores were found for the other categories of employment).

6) Sex: On the fifty-five item test, males scored higher than females ($F = 9.109$, $p = 0.0026$).

Three-way analysis of variance did not reveal any significant three-way interaction effects. Significant two-way interactions were apparent between: 1) S-E-S and grade, 2) S-E-S and hours of weekly employment, and 3) grade and hours of weekly employment (Tables 20 and 23). Further analysis is needed in order to explore the extent of these interactions. Regression analysis revealed that variations in students' mean scores on the TCC-R are not significantly related to their use of consumer information sources or their money management practices. Indicating that, whether or not students use a variety of information sources or money management practices does not relate significantly to their cognitive knowledge as measured by the TCC-R.

# CHAPTER V

## DISCUSSION, IMPLICATIONS AND RECOMMENDATIONS

### Discussion of the Findings

Discussion of the findings will reflect the intents of the research question stated in Chapter I. The following topics will be considered: the consumer knowledge of students as measured by the TCC-R; the effects of selected independent variables on students' consumer knowledge; and, the relationship between students' mean scores and their use of information sources and their money management practices.

### Student Consumer Knowledge as Measured by the Test of Consumer Competencies - Revised (TCC-R)

An overall achievement score of only slightly more than 50% does not seem to indicate a high level of comprehension of the cognitive consumer concepts measured by the TCC-R. Analysis of the frequency distribution of correct responses (Table 3, p. 42) revealed that this level of comprehension applies to 54% of the students sampled. Poor achievement on the items pertaining to housing, insurance, savings and investments, taxes, health services, drugs and cosmetics may be attributed not only to lack of factual knowledge but also to lack of life experiences in most of these areas. Lack of factual knowledge is supported by Herbert and Wagner's (1980) review of Alberta curriculum guides which revealed few

objectives related to these areas. Concern about the test's relevance to the life experiences and needs of students was expressed by some panel members when they rated the test items. Lack of experience, relevance to real-life needs and maturity of students may be further contributing factors to the cognitive consumer knowledge measured by the TCC-R. Study is needed in these areas.

This is not to suggest that "learning through experience in the marketplace" is the most viable or desirable way for students to acquire consumer knowledge. The overall costs, both economical and socio-psychological, of <u>having to</u> "learn by experience" may offset any practical benefits if students do not have a good knowledge base on which competent consumer decisions can be made. For this reason it seems practical to suggest that consumer education programs, while providing the knowledge needed to make these decisions, make the necessary link to the practical problems adolescents face in dealing effectively in the marketplace.

Although overall student scores on the TCC-R do not represent a high degree of consumer knowledge, it is encouraging to note that those students who perceived exposure to consumer education (CEAS) scored higher than those who did not (CEUS). Differences in achievement scores due to exposure to consumer courses were also noted by Garman (1979), Langrehr (1977), Davis (1977), Stanley (1976), and Seymour (1975). This lends considerable support to making more concentrated efforts to incorporate substantial consumer education components into Alberta curriculum.

## Effects of Selected Independent Variables on Student Consumer Knowledge

### Sex, School Program and Perceived Exposure to Consumer Education

The findings of this study that males do better on the test than females, that students in academic programs do better than those in non-academic programs and that CEA-students do better than CEU-students would indicate that more consideration be given to the number and types of consumer programs presently included in secondary education curricula.

Further probing is needed to determine the underlying reasons behind these findings. A prime concern would be to determine whether or not all students get the same amount of consumer education. Or is there a self-selection process on-going whereby academic and male students are taking more courses that reflect consumer content? To answer this question it would be necessary to study the kinds of courses in which students are registering and consider the consumer content being developed within these courses. If there is a difference in the kinds of courses taken, then further efforts are needed to ensure that those students who are presently less knowledgeable (i.e., non-academic and female students) have equal opportunity and access to consumer knowledge in the courses they select. If students are selecting essentially similar courses, then different questions need to be asked. How do the consumer concerns of males and females, academic and non-academic, CEA-students and CEU-students differ? In what ways do these differing concerns affect the overall consumer knowledge that students have? These

questions could be effectively addressed through qualitative research techniques.

For this study, the higher scores of academic students and those who perceived exposure to consumer education (CEAS) may reflect the cognitive and content-oriented nature of the test. Reading level of the test may have hampered the non-academic student. Further study is needed in these areas.

Interactive Effects of Grade, S-E-S, and Hours of Employment

It seems that those adolescents with the poorest grasp of consumer competencies are non-working grade nine students of low socio-economic status. Alarming as it is that the consumer knowledge of low S-E-S grade nines is very weak, it is even more disconcerting that a high school student approaching graduation knows very little more as evidenced by the overall mean score of 52% on the TCC-R. The opportunity for these groups to participate effectively in the marketplace is severely limited not only by income but also by knowledge levels. This may well indicate a condition which they will need to cope with as adults. The inclusion of more definitive consumer programs at the elementary and junior high school levels would serve to increase the awareness these students have both of consumer issues and of themselves as consumers. The current policy of integrating consumer concepts into established core programs should be re-assessed with the view to more effectively addressing the needs of potentially disadvantaged consumers. The need to have completion of a consumer education or life-skills program as a requirement of high school graduation requires further deliberation.

## Relationship of Students' Use of Information Sources and Money Management Practices to Consumer Knowledge

The sources of information that were most frequently used by students include the categories of family (90%), friends (88%), and media (79%) (Appendix C). Because most students who sought information from family, friends, and media also rated them as very important sources, consumer educators should consider focusing informational programs toward the larger community or public realms. It may be that educators will need to actively involve community (family) members in program planning or it may mean that the educative role of media could be more fully explored, developed and funded. Hopefully, this broader information base would help to improve students' consumer knowledge.

The money management practices that were most frequently used by students included having a savings/chequeing account (77%) and keeping track of the money saved monthly (64%) (Appendix C). Few students used any other money management techniques which may help to explain why students' knowledge is moderately weak to weak in the areas of money management, consumer credit, savings and investments and insurance. A particularly disconcerting finding is that students who are using personal or parental credit had lower competency scores on the overall TCC-R.

Further study is needed to determine whether or not those students who use credit are actually knowledgeable about its use. If students appear to be gaining knowledge about credit through use of it, then support could be given to learning about credit through the personal

experience of having and using credit cards. The practical concerns of all-to-easy access to credit, proof of credit worthiness, and the possibility of increasing the average consumer debt because of over-creditation would then need to be more directly addressed. If, however, students do not appear to be knowledgeable about credit because of their use of it, then the need for some form of education regarding money management and informed credit usage is supported. This latter view bolsters the idea that, given appropriate knowledge, students can then meaningfully "act upon" their environment rather than feeling victimized by it.

## Conclusions

The scores achieved by students on the TCC-R do not reflect a high level of knowledge regarding consumer issues. Given the overall findings of this study it would seem appropriate to propose that the Department of Education reformulate their position and adopt more germane views toward the importance and need for approved consumer education programs in Alberta schools. There is no room for complacency about what is being achieved under the present policy. Students seem ill-equipped to deal effectively in the marketplace.

With this in mind, it is further urged that a retrospective look at the integrated or interdisciplinary approach to consumer education be taken. This is not to suggest that the stated intents (goals) of the integrated approach are to be questionned. Rather it suggests that the approach be expanded and consideration be given to a Department approved

curricular framework for consumer education across both elementary and secondary school levels.

## Implications

The TCC-R has proven to be a valid and reliable measure of cognitive consumer competency. It could be effectively used by program planners as a needs assessment device or by program evaluators in both formative and summative assessment of actual or perceived consumer education programs.

The students who perceived exposure to consumer education in this study did so in the subject areas of: business education (28%), home economics (32%), social studies (28%), guidance (7%), and specific consumer-oriented courses (4%) (Appendix C). Study of the objectives related to consumer education within these subject areas would define areas of consumer content that overlap or are neglected. Curriculum development in these weak areas may strengthen the areas in which students' consumer knowledge is limited.

Ninety percent of the students sampled used and valued the importance of family as a source of information. Considering that current trends in home economics education are toward family-focused programs, this finding challenges home economics educators to take action in developing programs in co-operation with the family.

Seventy-nine percent of the students used media as a source of consumer information. This has implications for those concerned with school programs as well as those involved with the production and dissemination of media services. Each of these groups must know who

needs consumer information, what the people are like, and how they can best be reached. This study found that grade nine students of low socio-economic status with no working experience were most in need of consumer information. The overall mean score of 52% achieved by all students sampled certainly indicates that a similar need extends beyond grade nine. Questions yet to be addressed are "What are these people really like?" and "How can they be reached?" Further exploration and development of media as an educative tool may be the answer to the how question.

## Recommendations for Further Research

Several avenues for further research are suggested by the findings of this study. Specific recommendations are to:

1. Further explore the extent or direction of the interactive effects of grade, socio-economic status and hours of employment on students' consumer knowledge. Analysis using a regression approach with each of the interaction effects entered as new variables would provide additional information concerning possible trends.
2. Conduct a review of Alberta curriculum guides. Investigate the relationship between consumer-oriented objectives and the areas of strength and weakness on students' consumer knowledge identified in this or a similar study.
3. Replicate this study in several years to survey changes in the consumer knowledge of students. Because the trend toward teaching consumer education through an integrated approach has

only been recently introduced to Alberta schools (i.e., Teaching Consumer Education Through the Regular School Program, 1979), a replication study at a future date would provide information on ensuing changes in students' consumer knowledge.

4. Repeat the study with a rural sample to ascertain whether there are significant differences in the consumer knowledge of urban and rural students.
5. Conduct an in-depth study of the consumer knowledge of students using a particular group rather than a random sample.
6. Assess the effect of a consumer education course on the consumer knowledge of students by comparing their pre- and post test scores on the TCC-R.
7. Compare the effects on students' consumer knowledge level of having taken a course with buymanship approach versus a life-goals (values) approach.
8. Investigate the relationship between students' cognitive consumer knowledge and their application of this knowledge in practical (real-world) situations. A study of this sort would provide valuable insight into the relationship of the cognitive and affective aspects of student's consumer knowledge.
9. Further explore the relationship between students' consumer knowledge and the variables of sex, income, money management, decision making and credit usage.
10. Conduct further test revisions and pilot testing on the TCC-R. Refinements of the test's reliability coefficient and

discriminatory indices will help to make the test a more standardized measure.

11. Develop a test instrument to measure the cognitive consumer knowledge of elementary students.
12. Study the effects of school work experience programs on the consumer knowledge of students.
13. Conduct a Cloze test on the TCC-R, in conjunction with any further refinements, to ensure that students comprehend the test questions at their level of reading.

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# APPENDIX A

## VALIDATION PROCEDURES AND EXPERT PANEL RATINGS FOR THE TCC-R

Students demonstrate knowledge of the INDIVIDUAL CONSUMER IN THE MARKETPLACE when they can:

Content Area 1

Response Code: Does not relate = 0; Important = 1; V Important = 2.*

| Objective | Code | Test Item | Code | Comments or Suggestions |
|---|---|---|---|---|
| 1. recognize the consumer's role in our economy as a major buyer and producer of goods and services. | 1.(15)[a] (0-5-5)[b] | 1.1 What are the two roles the individual must fulfill in properly contributing to the Canadian economy?<br>a) spender and saver<br>*b) producer and consumer<br>c) economic voter and taxpayer<br>d) marketer and producer | 1.1(11) (1-7-2) | |
| 2. identify the rights and responsibilities of the consumer. | 2.(18) (0-2-8) | 2.1 If a consumer has a complaint, he should begin with<br>a) the provincial government's Consumer Complaint Bureau<br>b) the manufacturer<br>c) the distributer<br>*d) the local retail establishment | 2.1(16) (1-3-6) | |
| 3. recognize the major factors that influence purchasing decisions. | 3.(17) (0-3-7) | 3.1 The largest single factor which determines a family's buying habits is the parents'<br>a) age<br>b) educational background<br>c) income level<br>*d) social beliefs | 3.1(11) (1-7-2) | |
| 4. identify the sources of information that may be consulted when becoming a well-informed buyer. | 4.(16) (0-2-8) | 4.1 Before making any purchase, the consumer should always read the<br>*a) product labels<br>b) buying guides<br>c) business trade booklets<br>d) government source documents | 4.1(16) (0-4-6) | |
| 5. recognize fraudulent and deceptive business practices. | 5.(17) (0-3-7) | 5.1 Which statement about fraud is not true?<br>a) It is a deliberate distortion of the truth.<br>b) It is difficult to prove fraudulent intention on the part of the seller.<br>*c) It is precisely defined by the courts.<br>d) It should be identified so consumers can avoid such practices. | 5.1(13) (1-5-4) | |

Note

a. Single number in parentheses indicate the total response of the judges for the objective and accompanying test item. (Total = 0 times column I, 1 times Column II, plus 2 times Column III.

b. Grouped numbers in parentheses indicate the number of judges who rated the items as 0, 1 or 2 respectively.

Students demonstrate knowledge of MONEY MANAGEMENT when they can:

Content Area 2

Response Code: Does not relate = 0; Important = 1; V Important = 2.

| Objective | Code | Test Item | Code | Comments or Suggestions |
|---|---|---|---|---|
| 6. recognize how values, goals, and needs influence the use of personal and family income. | 6.(19) (0-1-9) | 6.1 The purpose of a budget is to<br>a) keep an accurate record of what has been spent.<br>b) limit savings to a controlled level<br>*c) plan for spending, based on anticipated income and goals<br>d) arrange for a comparative shopping program | 6.1(17) (1-1-8) | |
| 7. recognize the expense categories in a family budget and the type of records that should be kept. | 7.(15) (0-5-5) | 7.1 For an average family, which of these would be classified as a fixed expenditure?<br>a) clothing<br>b) medical services<br>*c) automobile payment<br>d) home maintenance | 7.1(12) (1-6-3) | |
| 8. identify the steps in the decision-making process of money management. | 8.(16) (0-4-6) | 8.1 An early step in any decision-making process that involves management should be to<br>a) evaluate alternative choices<br>b) compare prices<br>c) shop for credit<br>*d) define goals | 8.1(10) (0-2-8) | |
| 9. recognize that a family's income and financial plans change at different periods in life. | 9.(17) (0-3-7) | 9.1 During the first two years of marriage, most young couples would have a<br>a) high income and few expenses<br>b) high income and many expenses<br>c) low income and few expenses<br>*d) low income and many expenses | 9.1(12) (1-6-3) | |

Students demonstrate knowledge of CONSUMER CREDIT when they can:

Content Area 3

Response Code: Does not relate = 0; Important = 1; V Important = 2.

| Objective | Code | Test Item | Code | Comments or Suggestions |
|---|---|---|---|---|
| 10. recognize the importance of consumer credit in the economy. | 10.(15) (1-3-6) | 10.1 The use of consumer credit has encouraged<br>a) increased consumption and probably increased production costs<br>*b) increased consumption and probably decreased production costs<br>c) decreased consumption and probably increased production costs<br>d) decreased consumption and probably decreased production costs | 10.1(11) (2-5-3) | |
| 11. recognize the various methods for deriving interest rates charged for installment credit and other loans. | 11.(14) (1-4-5) | 11.1 The fairest, most meaningful way to express the cost of credit is<br>a) deferred percentage rate<br>b) simple percentage rate<br>c) stated percentage rate<br>*d) annual percentage rate | 11.1(14) (1-4-5) | |
| 12. identify different types and sources of consumer credit. | 12.(19) (0-1-9) | 12.1 The least expensive source of money when financing a car is<br>a) a local finance company<br>b) sales finance company<br>*c) a credit union<br>d) the dealer | 12.1(16) (0-4-6) | |
| 13. recognize the legal provisions and consumer obligations concerning the major laws governing consumer credit. | 13.(16) (0-4-6) | 13.1 By law, which of the following items of information need not be included on the credit disclosure statement?<br>a) finance charge in dollars<br>b) annual percentage rate<br>*c) title charges<br>d) number of payments | 13.1(12) (2-4-4) | |
| 14. recognize the costs involved when money due to future credit obligations is not available for current spending. | 14.(18) (0-2-8) | 14.1 A couple purchased three rooms of new furniture on an installment plan. What effect will this have on their future spending potential?<br>*a) It will be decreased.<br>b) It will be increased.<br>c) It will increase and then decrease.<br>d) It will remain unchanged. | 14.1(18) (0-2-8) | |

Students demonstrate knowledge of HOUSING when they can:

Content Area 4

Response Code: Does not relate = 0; Important = 1; V Important = 2.

| Objective | Code | Test Item | Code | Comments or Suggestions |
|---|---|---|---|---|
| 15. identify the criteria used in determining housing needs. | 15.(16)<br>(1-2-7) | 15.1 The major reason most newly married couples do not buy a house is the<br>a) rising costs of household maintenance<br>b) low cost of rental housing<br>*c) lack of money for a down payment<br>d) high cost of moving | 15.1(11)<br>(3-3-4) | |
| 16. identify the methods and sources of financing a home. | 16.(16)<br>(2-1-7) | 16.1 Which is the largest source of funds for home mortgages?<br>a) life insurance companies<br>b) mortgage brokers<br>c) Canada Mortgage & Housing Corporation (CMHC)<br>*d) savings and loan associations | 16.1(10)<br>(2-6-2) | |
| 17. recognize the major factors included in the cost of purchasing or renting a family's housing. | 17.(17)<br>(0-3-7) | 17.1 When the Canada Mortgage & Housing Corporation sets an interest rate for mortgages which is below the market rate, the rate can be raised by<br>a) requiring larger down payments<br>b) increasing mortgage insurance<br>*c) charging points to the seller<br>d) decreasing real estate commissions | 17.1(5)<br>(6-3-1) | |
| 18. identify the legal obligations and responsibilities related to owning or renting housing. | 18.(18)<br>(0-2-8) | 18.1 A buyer acquires no equity in the property or title to a house while paying off its purchase price. This practice is called<br>a) first mortgage<br>*b) contract for deed<br>c) second mortgage<br>d) joint ownership | 18.1(6)<br>(6-2-2) | |

Students demonstrate knowledge of FOOD when they can:

Content Area 5

Response Code: Does not relate = 0; Important = 1; V Important = 2.

| Objective | Code | Test Item | Code | Comments / Summary |
|---|---|---|---|---|
| 19. identify basic nutrients and their food sources | 19.(17)<br>(0-3-7) | 19.1 Fuel or energy for the body is provided by<br>a) minerals<br>*b) carbohydrates<br>c) calcium<br>d) vitamins | 19.1(9)<br>(4-3-3) | |
| 20. recognize how product labels and the government's grading system provide valuable information for the consumer. | 20.(16)<br>(0-4-6) | 20.1 Any food product that falls under the federal government's "standards of identity" listing must comply with<br>*a) accepted specifications on types and amounts of ingredients<br>b) Canadian labelling, weights & Measures Act<br>c) a regulation that permits no independent store brands<br>d) specifications which permit no preservatives. | 20.1(10)<br>(3-4-3) | |
| 21. recognize the various factors (such as price, life style, income, etc.) that determine food buying habits. | 21.(16)<br>(1-2-7) | 21.1 The major factor which influences a family's specific choices of food is<br>*a) differences in tastes<br>b) occupation of parents<br>c) amount of education<br>d) social class | 21.1(13)<br>(2-3-5) | |

Students demonstrate knowledge of TRANSPORTATION when they can:

Content Area 6

Response Code: Does not relate = 0; Important = 1; V Important = 2.

| Objective | Code | Test Item | Code | Comments or Suggestions |
|---|---|---|---|---|
| 22. identify a consumer's automobile transportation needs with regard to depreciation, usage patterns, and the costs of operation and maintenance. | 22.(15) (0-5-5) | 22.1 The biggest single cost in owning and operating a new car is<br>a) maintenance<br>*b) depreciation<br>c) fuel costs<br>d) environmental pollution | 22.1(15) (0-5-5) | |
| 23. identify the social costs, such as pollution and noise, which are created by alternative means of transportation. | 23.(17) (0-3-7) | 23.1 The type of transportation that creates the greatest pollution per passenger mile is<br>a) motorcyles<br>b) trains<br>*c) personal autos<br>d) city buses | 23.1(18) (0-2-8) | |
| 24. recognize that regular maintenance and careful driving habits maximize the efficiency and resale value of an automobile. | 24.(17) (0-3-7) | 24.1 Consumers could reduce auto pollution and improve fuel economy if they were willing to<br>*a) get regular maintenance<br>b) spend $70 a month on tune-ups<br>c) burn only high octane gasoline<br>d) drive with under-inflated tires | 24.1(15) (2-1-7) | |

Students demonstrate knowledge of CLOTHING when they can:

Content Area 7

Response Code: Does not relate = 0; Important = 1; V Important = 2.

| Objective | Code | Test Item | Code | Comments or Suggestions |
|---|---|---|---|---|
| 25. recognize clothing needs in relation to regular activities such as work, school, church, club and civic affairs, and social activities. | 25.(14) (1-4-5) | 25.1 Clothing that is generally accepted and used by a wide cross-section of society is considered a<br>a) short-run rage<br>*b) current fashion<br>c) temporary fad<br>d) mod style | 25.1(7) (4-5-1) | |
| 26. recognize the need to plan, evaluate, select, and finance a wardrobe to meet individual needs. | 26.(18) (0-2-8) | 26.1 The very first step in an organized approach to purchasing clothing is to<br>a) estimate the amount of money you have to spend<br>b) know your proper size<br>*c) determine your clothing needs<br>d) identify and compare factors such as quality | 26.1(15) (0-5-5) | |
| 27. identify price values at seasonal or specially advertised sales in order to know when and where price should be a factor in purchasing. | 27.(14) (0-6-4) | 27.1 Which statement about the price of an article of clothing is not true?<br>a) Mailing and handling costs add to the regular price.<br>b) The cost of inflation has directly affected the price of clothing.<br>c) As a family's standard of living rises, they spend more as a percentage on their clothing.<br>*d) The price of an article of clothing is usually very representative of the quality. | 27.1(15) (1-3-6) | |

Students demonstrate knowledge of HEALTH SERVICES, DRUGS AND COSMETICS when they can: Content Area 8

Response Code: Does not relate = 0; Important = 1; V Important = 2.

| Objective | Code | Test Items | Code | Comments or Suggestions |
|---|---|---|---|---|
| 28. recognize that prescription drugs and cosmetics are potent substances that may help or harm the body, and the factors that influence the buying of such products. | 28.(18)<br>(0-2-8) | 28.1 Which statement about health service, drugs, and cosmetics is true?<br>a) The Canadian government considers all brands of aspirin to be the same.<br>*b) All suntan lotions are required to have effective sunscreening chemicals.<br>c) About 90% of the people in Canada are allergic to some of the chemical used in cosmetics.<br>d) The Food and Drug Directorate has no control over the cosmetic industry. | 28.1(6)<br>(4-5-1) | |
| 29. identify health services and information available at little or no cost, such as community health agencies, local or state health departments, welfare departments and professional organizations. | 29.(16)<br>(0-4-6) | 29.1 When families are not able to provide for their own medical care, it can be obtained through<br>a) Provincial medicare<br>b) the Red Cross<br>c) the Canadian Medical Association<br>*d) public health services | 29.1(12)<br>(2-4-4) | |
| 30. recognize the necessity of a financial plan covering health costs, and the alternatives available in paying for health services. | 30.(12)<br>(2-4-4) | 30.1 The group health care plan, based on the concept of preventive medicine, where members prepay a set monthly fee for all services is called<br>a) major medical insurance<br>*b) health maintenance organization<br>c) Provincial medicare<br>d) endowment insurance | 30.1(6)<br>(4-5-1) | |
| 31. identify ways to build and preserve the best possible health. | 31.(17)<br>(1-2-7) | 31.1 The most common health problem in Canada is<br>a) alcoholism<br>b) malnutrition<br>c) cancer<br>*d) obesity | 31.1(14)<br>(2-2-6) | |

Students demonstrate knowledge of RECREATION when they can:

Content Area 9

Response Code: Does not relate = 0; Important = 1; V Important = 2.

| Objective | Code | Test Item | Code | Comments or Suggestions |
|---|---|---|---|---|
| 32. recognize that wise use of leisure time adds to happiness and satisfaction. | 32.(15) (1-3-6) | 32.1 On the average, Canadian workers are making<br>a) higher incomes and spending less money on leisure time activities<br>*b) higher incomes and spending more money on leisure time activities<br>c) lower incomes and spending less money on leisure time activities<br>d) lower incomes and spending more money on leisure time activities | 32.1(12) (3-2-5) | |
| 33. relate the various recreational markets to the costs associated with them. | 33.(15) (0-5-5) | 33.1 For convenience and lower costs, most vacation travel in Canada is done by<br>a) plane<br>b) train<br>c) bus<br>*d) car | 33.1(8) (4-4-2) | |
| 34. identify the various recreational activities that can act as supplementary sources of income. | 34.(5) (5-4-1) | 34.1 The money that Mr. Fine, a local school teacher, earns on weekends as an umpire at softball games<br>a) is considered to be investment income<br>b) is taxed at the rate of 100%<br>*c) permits him to increase his total yearly income<br>d) reduces his need to have a good budget | 34.1(7) (5-3-2) | |

Students demonstrate knowledge of FURNISHINGS AND APPLIANCES when the can: Content Area 10

Response Code: Does not relate = 0; Important = 1; V Important = 2.

| Objective | Code | Test Item | Code | Comments or Suggestions |
|---|---|---|---|---|
| 35. recognize that selective planning of furnishings and applicances involves choices concerning price, quality, delivery, installation, and service. | 35.(18) (0-2-8) | 35.1 A consumer made some price comparisons on a new refrigerator and found that a discount store has the lowest price. This was probably because the discount store<br>a) does not sell major brands<br>b) makes higher profits<br>c) sells only seconds or floor models<br>*d) does not include repair service | 35.1(7) (4-5-1) | |
| 36. recognizes the important features of labels, warranties, and guarantees on furniture and appliances. | 36.(17) (0-3-7) | 36.1 Furniture and appliance tags should provide the consumer with information on<br>*a) product features<br>b) available financing<br>c) installation<br>d) delivery costs | 36.1(15) (1-3-6) | |
| 37. identify sources of information and assistance when purchasing or maintaining furniture and appliances | 37.(19) (0-1-9) | 37.1 A good source of comparitive information about the quality of major appliances would be<br>a) advertisements<br>*b) Consumer Reports magazine<br>c) product labels<br>d) sales personnel. | 37.1(16) (0-4-6) | |

Students demonstrate knowledge of INSURANCE when they can:

Content Area II

Response Code: Does not relate = 0; Important = 1; V Important = 2.

| Objective | Code | Test Item | Code | Comments or Suggestions |
|---|---|---|---|---|
| 38. recognize the purpose and importance of insurance. | 38.(19) (0-1-9) | 38.1 The major principle underlying the concept of insurance is that insurance<br>a) shifts the burden of loss to a buy-now-pay-later basis.<br>*b) permits an individual to share in the risk of loss<br>c) actually reduces the chances of having an accident<br>d) always stops any form of legal claim. | 38.1(15) (1-3-6) | |
| 39. identify the chief characteristics of life insurance policies which will meet the needs of individuals and families | 39.(16) (0-4-6) | 39.1 One very common form of term life insurance is<br>*a) credit life<br>b) cash surrender life<br>c) limited payment life<br>d) endowment life | 39.1(10) (2-6-2) | |
| 40. identify risks in the ownership of various types of property and the amounts of coverage needed. | 40.(16) (0-4-6) | 40.1 A typical homeowner's insurance policy will not cover losses for<br>a) theft of personal property<br>*b) flood<br>c) fire<br>d) vandalism | 40.1(11) (2-5-3) | |
| 41. recognize the role of Social Security in planning a life insurance program. | 41.(8) (4-4-2) | 41.1 If fewer workers enter the labor force than the number of workers who retire, the same amount of social security benefits can be paid only if<br>a) payments to current workers on social security decrease.<br>b) the present tax rate decreases<br>c) the present tax rate increases, but the tax base decreases<br>*d) either the present tax rate or the tax base increases | 41.1(8) (5-2-3) | |
| 42. identify the cost of necessary car insurance coverage. | 42.(17) (0-3-7) | 42.1 Which insurance coverage provides financial protection for the driver of a car in which someone is injured or killed?<br>*a) liability insurance<br>b) comprehensive physical damage insurance<br>c) property damage insurance<br>d) collision insurance | 42.1(13) (2-3-5) | |

Students demonstrate knowledge of SAVINGS AND INVESTMENTS when they can:

Content Area 12

Response Code: Does not relate = 0; Important = 1; V Important = 2.

| Objective | Code | Test Item | Code | Comments or Suggestions |
|---|---|---|---|---|
| 43. identify alternatives for saving and investing money. | 43.(19) (0-1-9) | 43.1 The type of investment that provides a fixed rate of return is a<br>a) mutual fund<br>b) common stock<br>c) preferred bond<br>*d) corporate bond | 43.1(14) (1-4-5) | |
| 44. recognize possible objectives for savings and investments, such as safety, income certainty, income size, growth, liquidity, and a hedge against inflation. | 44.(20) (0-0-5) | 44.1 The ease and speed with which money can be withdrawn from savings is called<br>a) cash flow<br>b) rate of return<br>*c) liquidity<br>d) level of risk | 44.1(17) (1-1-8) | |
| 45. recognize the importance and need for flexibility in planning savings and investment goals. | 45.(18) (0-2-8) | 45.1 Although it is true that people invest for the overall purpose of earning money, the reason most often given by an individual for investing is to<br>a) provide additional income<br>*b) provide money for retirement<br>c) avoid financial risk<br>d) provide for short-term growth | 45.1(12) (2-3-5) | |
| 46. identify various sources of savings and investment information | 46.(18) (0-2-8) | 45.1 Which organization is responsible for the review and regulation of information regarding corporate stocks?<br>a) Local Chamber of Commerce<br>*b) Provincial Securities Commissions<br>c) Financial Post<br>d) Toronto Stock Exchange | 46.1(12) (3-2-5) | |

Students demonstrate knowledge of TAXES when they can:

Content Area 13

Response Code: Does not relate = 0; Important = 1; V Important = 2.

| Objective | Code | Test Item | Code | Comments or Suggestions |
|---|---|---|---|---|
| 47. recognize that all public services are provided and maintained through expenditures of tax monies. | 47.(18) (0-2-8) | 47.1 The greatest amount of revenue available to local governments comes through the collection of<br>*a) real estate taxes<br>b) income taxes<br>c) sales taxes<br>d) cigarette taxes | 47.1(16) (0-4-6) | |
| 48. identify the major components of fiscal policy. | 48.(16) (1-4-6) | 48.1 During a period of high unemployment and sluggish economic growth, a good policy for the federal government to pursue might be to<br>*a) begin an extensive road building program<br>b) increase corporate income taxes<br>c) increase foreign imports<br>d) increase personal income taxes | 48.1(10) (4-2-4) | |
| 49. recognize the major strengths and weaknesses of federal, provincial, and local taxes. | 49.(16) (0-4-6) | 49.1 The best example of a regressive tax paid by most Canadians is the<br>a) federal income tax<br>b) federal fuel tax<br>*c) Provincial sales tax<br>d) inheritance tax | 49.1(9) (5-3-3) | |
| 50. recognize that intelligent participation in the economic system requires a deep concern for the tax laws, methods of collection, and distribution. | 50.(15) (0-5-5) | 50.1 What do we call the means of returning tax dollars to local communities without imposing severe restrictions or obligations?<br>a) grants-in-aid<br>b) direct subsidies<br>*c) revenue sharing<br>d) monetary policy | 50.1(13) (2-3-5) | |

Students demonstrate knowledge of THE CONSUMER IN SOCIETY when they can:

Content Area 14

Response Code: Does not relate = 0; Important = 1; V Important = 2.

| Objective | Code | Test Item | Code | Comments or Suggestions |
|---|---|---|---|---|
| 51. identify the components of the circular flow of national economic activity. | 51. (15) (1-3-6) | 51.1 Money earned by Canadian workers that does not find its way directly back into the economy through consumer purchases is the amount<br>a) returned to consumers in the form of veterans benefits<br>b) returned to citizens by the government to retire existing debt<br>c) added to the price of products as they move step-by-step through the production cycle.<br>*d) placed in savings accounts | 51.1 (16) (1-2-7) | |
| 52. recognize how the consumers' "economic vote" influences production and prices of goods and services. | 52. (18) (0-2-8) | 52.1 Corvair cars are no longer manufactured. This product, like many others, failed because of<br>a) lack of brand advertising<br>b) high costs to the consumer<br>c) insufficient supply<br>*d) insufficient demand | 52.1 (14) (2-2-6) | |
| 53. recognize the effects of inflation, tight money, and other major economic conditions on the consumer. | 53. (17) (0-3-7) | 53.1 Mr. and Mrs. Jones have been unable to find financing to buy a house. This condition is usually called.<br>a) fiscal policy<br>b) easy money<br>*c) tight money<br>d) deflation | 53.1 (12) (3-2-5) | |
| 54. identify the major provisions of federal and provincial legislation for consumer protection. | 54. (18) (0-2-8) | 54.1 The law that permits the Food and Drug Directorate to remove dangerous products from the marketplace is the<br>a) Consumer Packaging and Labeling Act<br>*b) Hazardous Products Act<br>c) Food & Drug Act<br>d) Combines Investigation Act | 54.1 (16) (0-4-6) | |
| 55. recognize the major developments and progress of the consumer movement. | 55. (16) (0-4-6) | 55.1 The organization which was established to advise the Prime Minister of Canada on matters of consumer interest is the<br>*a) Office of Consumer and Corporate Affairs Canada.<br>b) Canadian Standards Association<br>c) National Department of Health and Welfare<br>d) Provincial Chamber of Commerce | 55.1 (13) (2-3-5) | |

November 4, 1980

Re: Expert Panel Judgement of Revised Version of the Test of Consumer Competencies

Dear Panel Member:

Enclosed please find instructions to help you in rating the objectives, test items and responses for the revised version of the Test of Consumer Competencies. In the original and revised forms of the test, the consumer education domain was thought of as those concepts dealing with the problem of, and skills needed by, the individual consumer in the marketplace as well as those of all consumers within society. I am interested in assessing the knowledge students have concerning consumer issues through the use of this revised test instrument.

Because of the expansiveness of the domain, I have decided to limit my test measures to fourteen content areas. These areas are those outlined by T.O. Stanley and used by him as the basis for the Test of Consumer Competencies. (TCC-O) (1976). The consumer competency content areas are:

1) Individual Consumer in Marketplace
2) Money Management
3) Consumer Credit
4) Housing
5) Food
6) Transportation
7) Clothing
8) Health Services, Drug & Cosmetics
9) Recreation
10) Furnishings and Appliances
11) Insurance
12) Savings and Investments
13) Taxes
14) Consumer in Society

Some of the items in TCC-O need to be revised so that they are appropriate for the Alberta situation. I would greatly appreciate your assistance in this task.

I have listed the objectives and test items that were designed by Stanley to measure student knowledge in each of the content areas. Please react to the objectives and test items in a three stage process described on the following page.

STEPS OR PROCEDURE:

1. Rate the extent to which the objective adequately reflects the content area under which it is listed. Place the appropriate response number in the code column according to how you rate each objective. Use the rating scale described below.

   0 - If you feel the objective is trivial or does not relate to the content area.

   1 - If you feel that the objective is important to the content area.

   2 - If you feel that the objective is very important to the content area.

2. Rate the extent to which each test item relates to the objective. Use the same scale as described above and place the number in the code column.

3. Take note of the correct response ("keyed" by a *) and judge it to be either correctly or incorrectly keyed. Should you decide that it is incorrectly keyed please comment or suggest changes in the right-hand column.

Please feel free to make general comments on the degree to which you think these objectives and test items reflect the consumer education domain? ... or Alberta's rationale and emphases for consumer education. Perhaps there are areas which this test neglects yet you feel are important to consumer education. If so, I invite you to express your concerns in the comments/suggestions column.

Your assistance in making this test instrument valid for the Canadian situation is greatly appreciated. For your convenience, the response numbers to be used in the code column are on each sheet. Once again, I thank you for the time and effort you donated in helping to assure the relevance and validity of this revised form of the Test of Consumer Competencies.

Could I ask that you return these forms to be by November 25, 1980 in the enclosed envelope.

Sincerely,

Pat Herbert
Graduate Student
Secondary Education

Verna Lefebvre
Associate Professor
Secondary Education
University of Alberta

/tb

# APPENDIX B

## TEST ITEMS, DIRECTIONS FOR TEST ADMINISTRATION, AND TEST QUESTIONS LISTED BY CONTENT AREA

Form 1

# TEST OF CONSUMER COMPETENCIES - REVISED

Directions:

1. Each question or incomplete statement is followed by four possible answers. Read each question and decide which ONE of the four alternatives is the best. MARK YOUR ANSWERS ON THE SEPARATE ANSWER SHEET. Make certain the number on your answer sheet corresponds to the number of the question that you are answering.
2. Do NOT write in this test booklet.
3. Read each question carefully but do not spend too much time on any one question. Answer all questions. If you are unsure of the correct answer, mark the answer you think is probably right. There is no penalty for guessing.
4. Mark only ONE answer for each question. Use a heavy, black mark. If you decide to change your answer completely erase your answer, then darken in the space of your new answer.

Example:

200. A person who dedicates their life to the study of sociology is a:

A. biologist
B. philosopher
C. psychiatrist
D. sociologist

Answer Sheet

200. A B C D E
① ② ③ ● ⑤

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1. The type of transportation that creates the greatest pollution per passenger mile is:

   (a) motorcycles.
   (b) trains.
   (c) personal autos.
   (d) city buses.

2. Furniture and appliance tags should provide the consumer with information on:

   (a) product features.
   (b) available financing.
   (c) installation.
   (d) delivery costs.

3. The purpose of a budget is to:

   (a) keep an accurate record of what has been spent.
   (b) limit savings to a controlled level.
   (c) plan for spending, based on anticipated income and goals.
   (d) arrange for a comparative shopping program.

4. The largest single factor which determines a family's buying habits is the parents':

   (a) age.
   (b) educational background.
   (c) income level.
   (d) social beliefs.

5. During the first two years of marriage most young couples living on <u>one</u> income would have a:

   (a) high income and few expenses.
   (b) high income and many expenses.
   (c) low income and few expenses.
   (d) low income and many expenses.

6. Before making any purchases, the consumer should always read the:

   (a) product labels.
   (b) buying guides.
   (c) business trade booklets.
   (d) government source documents.

7. For convenience and lower costs, most family vacation travel in Canada is done by:

   (a) plane.
   (b) train.
   (c) bus.
   (d) car.

8. In Canada, family medical care is obtained through:

   (a) public health services.
   (b) the Red Cross.
   (c) the Canadian Medical Association.
   (d) provincial medicare.

9. Clothing that is generally accepted and worn by a wide cross-section of society is considered a:

   (a) short-run rage.
   (b) current fashion.
   (c) temporary fad.
   (d) mod style.

10. The most common and inexpensive form of life insurance is:

    (a) term life.
    (b) cash surrender life.
    (c) limited payment life.
    (d) endowment life.

11. A couple purchased three rooms of new furniture on an installment credit plan. What effect will this have on their future spending potential?

    (a) It will be decreased.
    (b) It will be increased.
    (c) It will increase and then decrease.
    (d) It will remain unchanged.

12. Corvair cars are no longer manufactured. This product, like many others, failed because of:

    (a) lack of brand advertising.
    (b) high costs to the consumer.
    (c) insufficient supply.
    (d) insufficient demand.

Go on to next page . . . . . 2

13. The fairest, most meaningful way to express the cost of credit is:

    (a) deferred percentage rate.
    (b) simple percentage rate.
    (c) stated percentage rate.
    (d) annual percentage rate and dollar costs.

14. Which insurance coverage provides financial protection for the driver of a car in which someone is injured or killed:

    (a) liability insurance.
    (b) comprehensive physical damage insurance.
    (c) property damage insurance.
    (d) collision insurance.

15. Which is the largest source of funds for home mortgages:

    (a) life insurance companies.
    (b) mortgage brokers.
    (c) Canada Mortgage & Housing Corporation.
    (d) savings and loan associations.

16. What do we call the means of returning tax dollars to local communities without imposing severe restrictions or obligations:

    (a) grants-in-aid.
    (b) direct subsidies.
    (c) revenue sharing.
    (d) monetary policy.

17. What are the two major roles the individual must fulfill in properly contributing to the Canadian economy:

    (a) spender and saver.
    (b) producer and consumer.
    (c) economic voter and taxpayer.
    (d) marketer and producer.

18. By law, which of the following items of information need not be included on the credit disclosure statement:

    (a) finance charge in dollars.
    (b) annual percentage rate.
    (c) title charges.
    (d) number of payments.

19. The greatest amount of revenue available to local governments comes through the collection of:

    (a) real estate taxes.
    (b) income taxes.
    (c) sales taxes.
    (d) cigarette taxes.

20. For an average family, which of these would be classified as a fixed expenditure:

    (a) clothing.
    (b) medical services.
    (c) automobile payment.
    (d) home maintenance.

21. Which statement about fraud is not true:

    (a) It is a deliberate distorition of the truth.
    (b) It is difficult to prove fraudulent intention on the part of the seller.
    (c) It is precisely defined by the courts.
    (d) It should be identified so consumers can avoid such practices.

22. The biggest single cost in owning and operating a new car is:

    (a) maintenance.
    (b) depreciation.
    (c) fuel costs.
    (d) environmental pollution.

23. While paying off the purchase price of a house, a home buyer acquires no equity in actual dollars in the property or title to a house. This practice is called:

    (a) first mortgage.
    (b) contracting for the deed.
    (c) second mortgage.
    (d) joint ownership.

24. On the average, Canadian workers are making:

    (a) high incomes and spending less money on leisure time activities.
    (b) higher incomes and spending more money on leisure time activities.
    (c) lower incomes and spending less money on leisure time activities.
    (d) lower incomes and spending more money on leisure time activities.

Go on to next page . . . . . 3

25. Fuel or energy for the body is provided by:

(a) minerals.
(b) carbohydrates.
(c) calcium.
(d) vitamins.

26. Consumers could reduce auto pollution and improve fuel economy if they were willing to:

(a) get regular maintenance.
(b) spend $70 a month on tune-ups.
(c) burn only high octane gasoline.
(d) drive with under-inflated tires.

27. The organization which was established to advise the Prime Minister of Canada on matters of consumer interest is the:

(a) Department of Consumer and Corporate Affairs Canada.
(b) Canadian Standards Association.
(c) National Department of Health and Welfare.
(d) Provincial Chambers of Commerce.

28. An early step in any decision-making process that involves money management should be to:

(a) evaluate alternative choices.
(b) compare prices.
(c) shop for credit.
(d) identify goals.

29. The major principle underlying the concept of insurance is that insurance:

(a) shifts the burden of loss to a buy-now-pay-later basis.
(b) permits an individual to share in the risk of loss.
(c) actually reduces the chances of having an accident.
(d) always stops any form of legal claim.

30. A consumer made some price comparisons on a new refrigerator and found that a discount store has the lowest price. This was probably because the discount store:

(a) does not sell major brands.
(b) makes higher profits.
(c) sells only seconds or floor models.
(d) does not include extra consumer services, (e.g. delivery, credit).

31. Which organization is responsible for the review and regulation of information regarding corporate stocks:

(a) Local Chamber of Commerce.
(b) Provincial Securities Commissions.
(c) Financial Post.
(d) Toronto Stock Exchange.

32. If fewer workers enter the labor force than the number of workers who retire, the same amount of social insurance benefits (e.g. Canada Pension, Family Allowance) can be paid only if:

(a) payments to current workers on social security decrease.
(b) the present tax rate decreases.
(c) the present tax rate increases.
(d) either the present tax rate or the tax base increases.

33. If a consumer has a complaint, he should begin with:

(a) the provincial government's Consumer Complaint Bureau.
(b) the manufacturer.
(c) the distributor.
(d) the local retail establishment.

34. Which statement about the price of an article of clothing is <u>not</u> true?

(a) Mailing and handling costs add to the regular price.
(b) The cost of inflation has directly affected the price of clothing.
(c) As a family's standard of living rises, they spend more as a percentage on their clothing.
(d) The price of an article of clothing is usually very representative of the quality.

35. The major reason most newly married couples do <u>not</u> buy a house is the:

(a) rising cost of household maintenance.
(b) low cost of rental housing.
(c) lack of money for a down payment.
(d) high cost of moving.

Go on to next page . . . . . 4

36. Mr. and Mrs. Jones have been unable to find financing to buy a house. This condition is usually called:

(a) fiscal policy.
(b) easy money.
(c) tight money.
(d) deflation.

37. Food products that are on the federal government's "standard of identity" listing must comply with:

(a) accepted guidelines on types and amounts of ingredients.
(b) Canadian Labelling, Weights & Measures Act.
(c) a regulation that permits no independent store brands.
(d) specifications which permit no preservatives.

38. Although this does not apply in all provinces, the best example of a regressive tax paid by most Canadians is the:

(a) federal income tax.
(b) federal fuel tax.
(c) provincial sales tax.
(d) inheritance tax.

39. Canadian workers "feed" the economy by spending money on consumer purchases. Any money that does not go into purchases is the amount:

(a) returned to consumers in the form of veterans benefits.
(b) returned to citizens by the government to retire existing debt.
(c) added to the price of products as they move step-by-step through the production cycle.
(d) placed in savings accounts.

40. The ease and speed with which money can be withdrawn from savings is called:

(a) cash flow.
(b) rate of return.
(c) liquidity.
(d) level of risk.

41. A typical homeowner's insurance policy will not cover losses for:

(a) theft of personal property.
(b) flood.
(c) fire.
(d) vandalism.

42. The major factor which influences a family's specific choices of food is:

(a) differences in taste.
(b) occupation of parents.
(c) amount of education.
(d) social class.

43. During a period of high unemployment and sluggish economic growth, a policy for the federal government to pursue might be to:

(a) begin an extensive road building program.
(b) increase corporate income taxes.
(c) increase foreign imports.
(d) increase personal income taxes.

44. Although it is true that people invest for the overall purpose of earning money, the reason most often given by an individual for investing is to:

(a) provide additional income.
(b) provide money for retirement.
(c) avoid financial risk.
(d) provide for short-term growth.

45. The over-use of consumer credit has encouraged:

(a) increased consumption and probably increased production costs.
(b) increased consumption and probably decreased production costs.
(c) decreased consumption and probably increased production costs.
(d) decreased consumption and probably decreased production costs.

Go on to next page . . . . . 5

46. Which statement about health services, drugs, and cosmetics is true:

(a) the Canadian government considers all brands of aspirin to be the same.
(b) cosmetics need not have lists of ingredients on the labels.
(c) about 90% of the people in Canada are allergic to some of the chemicals used in cosmetics.
(d) the Food and Drug Directorate has no control over the cosmetics industry.

47. Which statement about rental housing is true?

(a) A landlord may always enter the premises of a tenant.
(b) Normal repairs are the responsibility of the tenant unless an agreement is made with the landlord.
(c) Any improvements to rental property can be removed by the tenants.
(d) If a lease is for a specified period of time, the tenants are required to give notice when they move.

48. The type of investment that provides a fixed rate of return is a:

(a) mutual fund.
(b) common stock.
(c) preferred bond.
(d) corporate bond.

49. The law that permits the Food and Drug Directorate to remove dangerous products from the marketplace is the:

(a) Consumer Packaging and Labeling Act.
(b) Hazardous Products Act.
(c) Food & Drug Act.
(d) Combines Investigation Act.

50. When a person has an extra job in addition to their main occupation the money earned in the extra job:

(a) is considered to be investment income.
(b) is taxed at the rate of 100%.
(c) permits him to increase his total yearly income.
(d) reduces his need to have a good budget.

51. The very first step in an organized approach to purchasing clothing is to:

(a) estimate the amount of money you have to spend.
(b) know your proper size.
(c) determine your clothing needs.
(d) identify and compare factors such as quality.

52. The least expensive source of money when financing a car is:

(a) a local finance company.
(b) a sales finance company.
(c) a credit union.
(d) the dealer.

53. The most common health problem in Canada is:

(a) alcoholism.
(b) malnutrition.
(c) cancer.
(d) obesity.

54. A good source of comparative information about the quality of major appliances would be:

(a) advertisements.
(b) Consumer Reports magazine.
(c) product labels.
(d) sales personnel.

55. Group health care can be offered to employees by employers. If so, members prepay a set monthly fee for specific services. This is called:

(a) major medical insurance.
(b) extended health benefits.
(c) provincial insurance.
(d) endowment insurance.

DIRECTIONS TO STUDENTS

RE: ADMINISTRATION of the TCC-R and CONSUMER AWARENESS SURVEY

May I have your attention please?. . . . Today you are going to take part in a University research project concerning "young-adult consumers". You have been specially chosen as a sample of people that will represent all Grade 9/Grade 11 students in Edmonton.

In the next 50 minutes you will be completing two forms.

Form 1 - is a Test of Consumer Competencies, to find out how much you know about buying goods and services.

and

Form 2 - a Consumer Awareness Survey, to find out how you go about making purchasing decisions.

These two forms and an answer sheet will be passed out to you.

Each student should have: 2 pencils, 1 sheet scratch paper, 1 answer sheet, one Consumer Awareness Survey and 1 Test of Consumer Competencies - Revised booklet.

Marking the Answer Sheet

Please use only a soft-lead No. 2 pencil on your answer sheet. Do not use a ball point pen or any other kind of pencil. The test-scoring machine can read only marks made by soft-lead pencils.

Now look at your answer sheet and fill in the following information:

1. name (print & darken in the appropriate circles)
2. sex
3. grade
4. age - Birthdate

Answering the Test and Survey Questions

There are 55 questions in the test. You should be able to answer all of the questions in the time period given. Try to answer every question. Mark your answer for each question by darkening the circle that has the letter of your answer choice. (Use side one of the answer sheet #'s 1-55.) Are there any questions about how to mark the answers?

There is only one right answer for each question. If you do not know the answer, or if you are not sure of the answer to a question, mark the answer you think is probably right. There is no penalty for guessing. Be sure to make a heavy, black mark, and mark only the circle for your answer choice. If you must erase, be sure to erase completely. If you need to do any figuring, please do so on your scratch paper. Do not mark in your test booklet.

As soon as you finish the 55 test questions, turn over your answer sheet and start completing the Consumer Awareness Survey. (Start at question 101 and go to question 135.) Answers to these questions may be put directly on the answer sheet by blackening the number of the answer that best suits you.

NOTE: Questions 135 and 136 ask you to describe your parents' occupations. They are to be answered on the sheet that is attached to your computer answer sheet.

Please remember that you are representing all Grade 9's/Grade 11's in Edmonton . . . . therefore give it your best effort and answer the questions as well as you can.

If you aren't sure of an answer mark the one that you think is probably right.

You have 50 minutes.

TEST ITEMS LISTED BY CONTENT AREAS

| Content Areas | TCC-R Test Items |
|---|---|
| The Individual Consumer in the Marketplace | 4<br>6<br>17<br>21<br>33 |
| Money Management | 3<br>5<br>20<br>28 |
| Consumer Credit | 11<br>13<br>18<br>45<br>52 |
| Housing | 15<br>22<br>35<br>47 |
| Food | 25<br>37<br>42 |
| Transportation | 1<br>23<br>26 |
| Clothing | 9<br>34<br>51 |
| Health Services, Drugs and Cosmetics | 8<br>46<br>53<br>55 |
| Recreation | 7<br>24<br>50 |
| Furnishings and Appliances | 2<br>30<br>54 |

TEST ITEMS LISTED BY CONTENT AREAS

| Content Areas | TCC-R Test Items |
|---|---|
| Insurance | 10<br>14<br>29<br>32<br>41 |
| Savings and Investment | 31<br>40<br>44<br>48 |
| Taxes | 16<br>19<br>38<br>43 |
| The Consumer in Society | 12<br>27<br>36<br>39<br>49 |

# APPENDIX C

## CONSUMER AWARENESS SURVEY (CAS)

CONSUMER AWARENESS SURVEY FORM 2

We want to know about your "consumer awareness". Your answers to this survey will help us. No marks or grades are given to these forms. Your answers are confidential.

Directions:

1. Please mark your answers on side two of the computer answer sheet. Do not write in this survey booklet.

2. Make certain the number on your answer sheet corresponds to the number of the question you are answering.

3. Each question or incomplete statement is followed by possible answers. After reading the question, decide which answer applies to you and darken the number on your answer sheet so that it matches the answer you have chosen.

Example:

200. A person who owns their own business is said to be:

1. an employee
2. self-employed
3. a supervisor
4. an economist

Answer Sheet

| | A | B | C | D | E |
|---|---|---|---|---|---|
| 200. | 1 | ● | 3 | 4 | 5 |

4. Mark only one answer for each question. Use a heavy, black mark. If you decide to change your answer completely erase your answer, then darken the number of your new answer.

101. I am in school in a:
   1. junior high school program. (49%)
   2. senior high-general program. (18%)
   3. senior high-academic program. (30%)
   4. senior high-vocational program. (2%)
   5. senior high-business education program.(2%)

102. While attending school I live:
   1. by myself. (5%)
   2. in a family with one parent. (14%)
   3. in a family with two parents (include foster parents in this category). (77%)
   4. in a family with one parent plus other adult(s) (i.e., Step Father or Mother, guardians, or other adults). (7%)
   5. with other people that are not my parents. (2%)

103. How many hours did you work at a paid job last week?
   1. I did not work at a paid job last week. (54%)
   2. I worked up to 5 hours last week. (9%)
   3. I worked between 6 - 12 hours last week. (18%)
   4. I worked between 13 - 20 hours last week. (11%)
   5. I worked over 20 hours last week. (8%)

104. Was the number of hours you worked last week typical of your average working time for the last twelve months:
   1. Yes, it was typical. (21%)
   2. No, I work more during the summer months. (20%)
   3. No, I've changed jobs recently. (6%)
   4. No, I don't have a job at the present time. (41%)
   5. No, the hours vary depending on demand. (13%)

105. A paid job:
   1. is not a money source for me. (41%)
   2. is a source of up to $74.00/month for me. (13%)
   3. is a source of between $75.00-$149.00/month for me. (17%)
   4. is a source of between $150.00-$299.00/month for me. (16%)
   5. is a source of over $300.00/month for me. (12%)

106. An allowance or money from parents (or others):
   1. is not a money source for me. (38%)
   2. is a source of up to 0-$24.00/month for me. (37%)
   3. is a source of between $25.00-$74.00/month for me. (22%)
   4. is a source of between $75.00-$99.00/month for me. (2%)
   5. is a source of over $100.00/month for me. (2%)

107. Interest (i.e., from a savings account):
   1. is not a money source for me. (33%)
   2. is a source of up to $2.00/month for me. (27%)
   3. is a source of between $3.00-$5.00/month for me. (22%)
   4. is a source of between $6.00-$8.00/month for me. (7%)
   5. is a source of over $9.00/month for me. (10%)

108. The allowance or money received from my parents/or guardians:
   1. I do not receive any form of money from my parents. (22%)
   2. is given to me weekly. (18%)
   3. is given to me every second week. (7%)
   4. is given to me monthly. (16%)
   5. is given to me as I need it. (38%)

For numbers 109 to 114, blacken the number on your answer sheet that indicates your responsibility for providing the following out of your salary or allowance.

| | | No Responsibility | Partial Responsibility | Total Responsibility |
|---|---|---|---|---|
| 109. | Clothing | (1) (29%) | (2) (48%) | (3) (23%) |
| 110. | Room & Board | (1) (89%) | (2) (7%) | (3) (3%) |
| 111. | Transportation | (1) (33%) | (2) (49%) | (3) (16%) |
| 112. | Entertainment (*cigarettes, shows, dances, meals purchased outside of home*) | (1) (11%) | (2) (38%) | (3) (49%) |

| | | No Responsibility | Partial Responsibility | Total Responsibility |
|---|---|---|---|---|
| 113. | Food (*grocery expenses*) | (1) (81%) | (2) (17%) | (3) (2%) |
| 114. | Other personal expenses: (*lessons, clubs*) | (1) (38%) | (2) (36%) | (3) (24%) |

115. How much do your parents/or guardians expect you to consult with them on how your money is spent?
   1. all of the time. (4%)
   2. very often. (17%)
   3. occasionally. (40%)
   4. seldom. (29%)
   5. never. (10%)

116. Could you give an accurate account of what you spent last month?
   1. yes. (45%)
   2. no. (21%)
   3. Don't know for sure. (33%)

117. Could you give an accurate account of what you saved last month?
   1. yes. (64%)
   2. no. (19%)
   3. Don't know for sure. (16%)

118. Do you have a personal chequeing or savings account?
   1. Yes. (77%)
   2. No. (23%)

119. Do you have or use a personal charge (credit) card?

1. Yes, I own and use a credit card. (4%)
2. No, I do not own or use a credit card. (81%)
3. Yes, I use my parents' credit card. (10%)
4. No, I do not use my parents' credit card. (4%)

120. How often do you use your parents'/or guardians' charge (credit) card?

1. Never. (73%)
2. Occasionally. (22%)
3. A lot of the time. (4%)

Generally people try to get information about items they intend to buy. Questions 121 - 126 ask you to blacken the number that describes how often you use the following information sources when buying a major item.

| | Information Sources | Never Used | Used Occasionally | Used A lot |
|---|---|---|---|---|
| 121. | School program | (1) (51%) | (2) (41%) | (3) (7%) |
| 122. | Family | (1) (7%) | (2) (49%) | (3) (42%) |
| 123. | Friends | (1) (10%) | (2) (56%) | (3) (32%) |
| 124. | Sales people and in-store promotions | (1) (23%) | (2) (59%) | (3) (16%) |
| 125. | Media (*e.g. T.V., Radio, Newspaper, General Magazines*) | (1) (19%) | (2) (56%) | (3) (23%) |
| 126. | Consumer magazines (*e.g. Stereo Review, Ski (USA), Skiing (Canada), Motor Trend, Road & Track, Canadian Consumer, Consumer Reports*) | (1) (34%) | (2) (46%) | (3) (17%) |

Questions 127 to 132 ask you to blacken the number that describes how important you think the information source is when buying a major item.

| | Information Sources | Not Important | Somewhat Important | Very Important |
|---|---|---|---|---|
| 127. | School program | (1) (40%) | (2) (45%) | (3) (14%) |
| 128. | Family | (1) (6%) | (2) (43%) | (3) (48%) |
| 129. | Friends | (1) (13%) | (2) (60%) | (3) (25%) |
| 130. | Sales people and in-store promotions | (1) (29%) | (2) (54%) | (3) (15%) |
| 131. | Media (e.g. T.V., radio, Newspaper, General Magazines) | (1) (28%) | (2) (49%) | (3) (20%) |
| 132. | Consumer magazines (e.g. Stereo Review, Ski (USA), Skiing (Canada), Motor Trend, Road & Track, Consumer Reports, Canadian Consumer). | (1) (24%) | (2) (44%) | (3) (29%) |

Consumer education is concerned with many areas. It may include two or more of the following topics: effective buying and using of goods, money management, protection of consumer rights, understanding the relationship of consumer and the economic system, family or personal finance, consumer decision-making or marketing.

133. Have you ever taken courses in school that dealt with consumer topics but weren't necessarily called "consumer education"?

1. Yes. (57%)
2. No. (39%)

134. If you answered YES to the previous question, blacken the number of the course that dealt with consumer issues.

1. Business Courses (e.g. Business Foundations, Law, Accounting, Applied Math, Business Economics). (15%)
2. Home Economics. (17%)
3. Social Studies. (15%)
4. Interpersonal, Guidance or Career Courses. (4%)
5. More specific 'consumer' courses (e.g. Consumer Awareness, Consumer Survival, Consumer vs. Business, Consumer Facts of Life). (2%)

Questions 135 and 136 are continued on a separate sheet attached to your computer answer sheet. Please answer the questions directly on that sheet.

FORM 2....6(a)

These two questions ask you to indicate the occupations of your parents and/or guardians. If you do not have a Father, Mother or Guardian, then check (✓) "Does not apply to me."

When describing their occupations indicate where they work and the name of the job; include any special title, rank or description attached to the job.

135. State your Father's (or male Guardian's) occupation.

_____ Does not apply to me _____

136. State your Mother's (or female Guardian's) occupation.

_____ Does not apply to me _____

Thank you for your co-operation in completing this survey.

# APPENDIX D

## ITEM ANALYSIS ON THE TCC-R

The item statistics appearing below are based on
Gulliksen, Harold. Theory of Mental Tests.
New York: John Wiley & Sons, Inc., 1965. chapter 21

Contrary to previous documentation of this program, the number not finishing the test are not given special treatment in calculating the reliability and difficulty, i.e., this number is included in the sum of incorrect responses.
The ITEM RELIABILITY or ITEM VALIDITY index is now based on the POINT-BISERIAL correlation.

These statistics are not meaningful for speeded tests, i.e., special caution is required in interpreting item statistics when it is indicated that there were some who did not finish the test.

## G L O S S A R Y

DIF: DIFFICULTY - the proportion of examinees answering the item correctly
RPB: Point-biserial correlation between item and total test score
CRPB: Corrected RPB - RPB between item and total score not including the present item
CON: Confidence limits on CRPB
RBIS: Biserial correlation between item and total test score
CRBIS: Corrected RBIS
IRI: Item reliability index - RPB times square root of DIF times one minus DIF
N: Number of examinees in group
INV: Number of examinees not providing a valid response to this item
NF: Number of examinees not finishing the test from this item onwards
OMIT: Number of examinees omitting this item
*: indicates the correct answer (keyed response)
HIGH: Approximately 27.0% of the total group scoring highest on the total test
LOW: Same proportion as 'HIGH' having lowest scores

TEST SCORE MEANS: Means on the total test for the individuals giving the indicated response to this item
DISCRIMINATING POWER: The difference between the proportions of the HIGH and LOW group giving this response
STANDARD ERROR OF D.P.: Standard error of discriminating power

ITEM 1: DIF=0.762, RPB= 0.270, CRPB= 0.202 (95% CON= 0.128, 0.274)
RBIS= 0.372, CRBIS= 0.278, IRI=0.115

| GROUP | N | INV | NF | OMIT | 1 | 2 | 3* | 4 |
|---|---|---|---|---|---|---|---|---|
| TOTAL | 664 | 0 | 0 | 0 | 0.05 | 0.08 | 0.76 | 0.11 |
| HIGH | 194 | 0 | | | 0.03 | 0.05 | 0.87 | 0.05 |
| MID | 303 | 0 | | | 0.04 | 0.06 | 0.80 | 0.10 |
| LOW | 167 | 0 | | | 0.08 | 0.17 | 0.57 | 0.19 |
| TEST SCORE MEANS | | | | | 24.66 | 22.29 | 26.99 | 22.86 |
| DISCRIMINATING POWER | | | | | -0.05 | -0.12 | 0.30 | -0.13 |
| STANDARD ERROR OF D.P. | | | | | 0.00 | 0.00 | 0.01 | 0.00 |

ITEM 2: DIF=0.765, RPB= 0.200, CRPB= 0.133 (95% CON= 0.057, 0.207)
RBIS= 0.277, CRBIS= 0.183, IRI=0.085

| GROUP | N | INV | NF | OMIT | 1* | 2 | 3 | 4 |
|---|---|---|---|---|---|---|---|---|
| TOTAL | 664 | 2 | 0 | 0 | 0.77 | 0.10 | 0.04 | 0.09 |
| HIGH | 194 | 1 | | | 0.85 | 0.05 | 0.02 | 0.08 |
| MID | 303 | 0 | | | 0.78 | 0.09 | 0.04 | 0.09 |
| LOW | 167 | 1 | | | 0.65 | 0.17 | 0.05 | 0.12 |
| TEST SCORE MEANS | | | | | 26.74 | 23.12 | 23.67 | 24.59 |
| DISCRIMINATING POWER | | | | | 0.20 | -0.12 | -0.04 | -0.04 |
| STANDARD ERROR OF D.P. | | | | | 0.01 | 0.00 | 0.00 | 0.00 |

ITEM 3: DIF=0.658, RPB= 0.439, CRPB= 0.363 (95% CON= 0.295, 0.427)
RBIS= 0.567, CRBIS= 0.469, IRI=0.208

| GROUP | N | INV | NF | OMIT | 1 | 2 | 3* | 4 |
|---|---|---|---|---|---|---|---|---|
| TOTAL | 664 | 0 | 0 | 0 | 0.14 | 0.18 | 0.66 | 0.02 |
| HIGH | 194 | 0 | | | 0.05 | 0.05 | 0.91 | 0.0 |
| MID | 303 | 0 | | | 0.14 | 0.18 | 0.66 | 0.02 |
| LOW | 167 | 0 | | | 0.26 | 0.34 | 0.37 | 0.03 |
| TEST SCORE MEANS | | | | | 22.02 | 22.40 | 28.02 | 22.45 |
| DISCRIMINATING POWER | | | | | -0.22 | -0.29 | 0.54 | -0.03 |
| STANDARD ERROR OF D.P. | | | | | 0.00 | 0.00 | 0.01 | 0.00 |

ITEM 4: DIF=0.858, RPB= 0.137, CRPB= 0.081 (95% CON= 0.005, 0.156)
RBIS= 0.212, CRBIS= 0.126, IRI=0.048

| GROUP | N | INV | NF | OMIT | 1 | 2 | 3* | 4 |
|---|---|---|---|---|---|---|---|---|
| TOTAL | 664 | 0 | 0 | 0 | 0.01 | 0.05 | 0.86 | 0.08 |
| HIGH | 194 | 0 | | | 0.0 | 0.02 | 0.87 | 0.11 |
| MID | 303 | 0 | | | 0.01 | 0.03 | 0.91 | 0.06 |
| LOW | 167 | 0 | | | 0.02 | 0.13 | 0.76 | 0.09 |
| TEST SCORE MEANS | | | | | 19.00 | 20.47 | 26.39 | 26.55 |
| DISCRIMINATING POWER | | | | | -0.02 | -0.11 | 0.11 | 0.02 |
| STANDARD ERROR OF D.P. | | | | | 0.00 | 0.00 | 0.01 | 0.00 |

ITEM 5: DIF=0.642, RPB= 0.372, CRPB= 0.296 (95% CON= 0.225, 0.364)
RBIS= 0.478, CRBIS= 0.379, IRI=0.179

| GROUP | N | INV | NF | OMIT | 1 | 2 | 3 | 4* |
|---|---|---|---|---|---|---|---|---|
| TOTAL | 664 | 2 | 0 | 0 | 0.05 | 0.04 | 0.27 | 0.64 |
| HIGH | 194 | 0 | | | 0.0 | 0.01 | 0.15 | 0.84 |
| MID | 303 | 0 | | | 0.03 | 0.02 | 0.28 | 0.66 |
| LOW | 167 | 2 | | | 0.13 | 0.10 | 0.38 | 0.38 |
| TEST SCORE MEANS | | | | | 18.63 | 20.17 | 24.14 | 27.78 |
| DISCRIMINATING POWER | | | | | -0.13 | -0.09 | -0.23 | 0.46 |
| STANDARD ERROR OF D.P. | | | | | 0.00 | 0.00 | 0.01 | 0.01 |

ITEM 6: DIF=0.788, RPB= 0.054, CRPB= -0.011 (95% CON= -0.087, 0.065)
RBIS= 0.076, CRBIS=-0.016, IRI=0.022

| GROUP | N | INV | NF | OMIT | 1* | 2 | 3 | 4 |
|---|---|---|---|---|---|---|---|---|
| TOTAL | 664 | 1 | 0 | 0 | 0.79 | 0.18 | 0.02 | 0.02 |
| HIGH | 194 | 1 | | | 0.77 | 0.20 | 0.01 | 0.02 |
| MID | 303 | 0 | | | 0.83 | 0.15 | 0.01 | 0.01 |
| LOW | 167 | 0 | | | 0.73 | 0.20 | 0.05 | 0.02 |
| TEST SCORE MEANS | | | | | 26.22 | 25.79 | 21.58 | 24.10 |
| DISCRIMINATING POWER | | | | | 0.04 | 0.00 | -0.04 | -0.01 |
| STANDARD ERROR OF D.P. | | | | | 0.01 | 0.00 | 0.00 | 0.00 |

ITEM 7: DIF=0.776, RPB= 0.154, CRPB= 0.088 (95% CON= 0.012, 0.163)
RBIS= 0.215, CRBIS= 0.122, IRI=0.064

| GROUP | N | INV | NF | OMIT | 1 | 2 | 3 | 4* |
|---|---|---|---|---|---|---|---|---|
| TOTAL | 664 | 2 | 0 | 0 | 0.07 | 0.06 | 0.09 | 0.78 |
| HIGH | 194 | 0 | | | 0.08 | 0.06 | 0.03 | 0.84 |
| MID | 303 | 1 | | | 0.07 | 0.05 | 0.10 | 0.79 |
| LOW | 167 | 1 | | | 0.08 | 0.09 | 0.14 | 0.68 |
| TEST SCORE MEANS | | | | | 25.67 | 24.80 | 22.86 | 26.57 |
| DISCRIMINATING POWER | | | | | -0.00 | -0.03 | -0.12 | 0.16 |
| STANDARD ERROR OF D.P. | | | | | 0.00 | 0.00 | 0.00 | 0.01 |

ITEM 8: DIF=0.512, RPB= 0.414, CRPB= 0.334 (95% CON= 0.264, 0.400)
RBIS= 0.519, CRBIS= 0.418, IRI=0.207

| GROUP | N | INV | NF | OMIT | 1 | 2 | 3 | 4* |
|---|---|---|---|---|---|---|---|---|
| TOTAL | 664 | 3 | 0 | 0 | 0.17 | 0.10 | 0.21 | 0.51 |
| HIGH | 194 | 1 | | | 0.12 | 0.05 | 0.11 | 0.71 |
| MID | 303 | 1 | | | 0.14 | 0.09 | 0.22 | 0.55 |
| LOW | 167 | 1 | | | 0.30 | 0.18 | 0.31 | 0.20 |
| TEST SCORE MEANS | | | | | 23.23 | 23.06 | 23.71 | 28.57 |
| DISCRIMINATING POWER | | | | | -0.18 | -0.13 | -0.20 | 0.51 |
| STANDARD ERROR OF D.P. | | | | | 0.01 | 0.00 | 0.01 | 0.01 |

ITEM 9: DIF=0.675, RPB= 0.253, CRPB= 0.178 (95% CON= 0.104, 0.251)
RBIS= 0.330, CRBIS= 0.232, IRI=0.119

| GROUP | N | INV | NF | OMIT | 1 | 2* | 3 | 4 |
|---|---|---|---|---|---|---|---|---|
| TOTAL | 664 | 1 | 0 | 0 | 0.01 | 0.67 | 0.10 | 0.21 |
| HIGH | 194 | 0 | | | 0.01 | 0.79 | 0.03 | 0.18 |
| MID | 303 | 0 | | | 0.0 | 0.73 | 0.07 | 0.20 |
| LOW | 167 | 1 | | | 0.04 | 0.44 | 0.23 | 0.28 |
| TEST SCORE MEANS | | | | | 19.56 | 27.15 | 21.16 | 25.24 |
| DISCRIMINATING POWER | | | | | -0.03 | 0.35 | -0.20 | -0.11 |
| STANDARD ERROR OF D.P. | | | | | 0.00 | 0.01 | 0.00 | 0.01 |

ITEM 10: DIF=0.452, RPB= 0.170, CRPB= 0.090 (95% CON= 0.014, 0.165)
RBIS= 0.214, CRBIS= 0.114, IRI=0.085

| GROUP | N | INV | NF | OMIT | 1* | 2 | 3 | 4 |
|---|---|---|---|---|---|---|---|---|
| TOTAL | 664 | 6 | 0 | 0 | 0.45 | 0.06 | 0.36 | 0.13 |
| HIGH | 194 | 1 | | | 0.54 | 0.02 | 0.33 | 0.11 |
| MID | 303 | 0 | | | 0.46 | 0.04 | 0.39 | 0.12 |
| LOW | 167 | 5 | | | 0.33 | 0.15 | 0.33 | 0.16 |
| TEST SCORE MEANS | | | | | 27.22 | 21.18 | 25.90 | 25.11 |
| DISCRIMINATING POWER | | | | | 0.21 | -0.13 | 0.00 | -0.05 |
| STANDARD ERROR OF D.P. | | | | | 0.01 | 0.00 | 0.01 | 0.00 |

ITEM 11: DIF=0.694, RPB= 0.326, CRPB= 0.253 (95% CON= 0.180, 0.323)
RBIS= 0.429, CRBIS= 0.332, IRI=0.150

| GROUP | N | INV | NF | OMIT | 1* | 2 | 3 | 4 |
|---|---|---|---|---|---|---|---|---|
| TOTAL | 664 | 1 | 0 | 0 | 0.69 | 0.14 | 0.08 | 0.08 |
| HIGH | 194 | 0 | | | 0.86 | 0.06 | 0.04 | 0.05 |
| MID | 303 | 0 | | | 0.71 | 0.15 | 0.07 | 0.07 |
| LOW | 167 | 1 | | | 0.47 | 0.24 | 0.14 | 0.14 |
| TEST SCORE MEANS | | | | | 27.40 | 23.21 | 22.55 | 23.15 |
| DISCRIMINATING POWER | | | | | 0.39 | -0.18 | -0.11 | -0.09 |
| STANDARD ERROR OF D.P. | | | | | 0.01 | 0.00 | 0.00 | 0.00 |

ITEM 12: DIF=0.569, RPB= 0.275, CRPB= 0.196 (95% CON= 0.122, 0.268)
RBIS= 0.347, CRBIS= 0.247, IRI=0.136

| GROUP | N | INV | NF | OMIT | 1 | 2 | 3 | 4* |
|---|---|---|---|---|---|---|---|---|
| TOTAL | 664 | 1 | 0 | 0 | 0.07 | 0.33 | 0.03 | 0.57 |
| HIGH | 194 | 0 | | | 0.06 | 0.23 | 0.01 | 0.71 |
| MID | 303 | 0 | | | 0.07 | 0.33 | 0.02 | 0.58 |
| LOW | 167 | 1 | | | 0.07 | 0.44 | 0.10 | 0.38 |
| TEST SCORE MEANS | | | | | 25.05 | 24.36 | 19.68 | 27.54 |
| DISCRIMINATING POWER | | | | | -0.01 | -0.22 | -0.09 | 0.32 |
| STANDARD ERROR OF D.P. | | | | | 0.00 | 0.01 | 0.00 | 0.01 |

ITEM 13: DIF=0.494, RPB= 0.108, CRPB= 0.028 (95% CON= -0.048, 0.104)
RBIS= 0.135, CRBIS= 0.035, IRI=0.054

| GROUP | N | INV | NF | OMIT | 1 | 2 | 3 | 4* |
|---|---|---|---|---|---|---|---|---|
| TOTAL | 664 | 6 | 0 | 0 | 0.05 | 0.23 | 0.22 | 0.49 |
| HIGH | 194 | 1 | | | 0.05 | 0.18 | 0.21 | 0.56 |
| MID | 303 | 3 | | | 0.04 | 0.21 | 0.26 | 0.49 |
| LOW | 167 | 2 | | | 0.06 | 0.32 | 0.17 | 0.43 |
| TEST SCORE MEANS | | | | | 25.03 | 24.37 | 26.54 | 26.73 |
| DISCRIMINATING POWER | | | | | -0.01 | -0.15 | 0.04 | 0.13 |
| STANDARD ERROR OF D.P. | | | | | 0.00 | 0.01 | 0.00 | 0.01 |

ITEM 14: DIF=0.461, RPB= 0.383, CRPB= 0.303 (95% CON= 0.233, 0.371)
RBIS= 0.481, CRBIS= 0.381, IRI=0.191

| GROUP | N | INV | NF | OMIT | 1* | 2 | 3 | 4 |
|---|---|---|---|---|---|---|---|---|
| TOTAL | 664 | 0 | 0 | 0 | 0.46 | 0.27 | 0.03 | 0.23 |
| HIGH | 194 | 0 | | | 0.70 | 0.20 | 0.0 | 0.11 |
| MID | 303 | 0 | | | 0.46 | 0.30 | 0.02 | 0.23 |
| LOW | 167 | 0 | | | 0.20 | 0.32 | 0.10 | 0.38 |
| TEST SCORE MEANS | | | | | 28.63 | 24.70 | 18.30 | 23.63 |
| DISCRIMINATING POWER | | | | | 0.50 | -0.13 | -0.10 | -0.27 |
| STANDARD ERROR OF D.P. | | | | | 0.01 | 0.01 | 0.00 | 0.01 |

ITEM 15: DIF=0.453, RPB= 0.295, CRPB= 0.215 (95% CON= 0.142, 0.287)
RBIS= 0.371, CRBIS= 0.271, IRI=0.147

| GROUP | N | INV | NF | OMIT | 1 | 2 | 3 | 4* |
|---|---|---|---|---|---|---|---|---|
| TOTAL | 664 | 1 | 0 | 0 | 0.05 | 0.14 | 0.35 | 0.45 |
| HIGH | 194 | 0 | | | 0.03 | 0.17 | 0.16 | 0.64 |
| MID | 303 | 0 | | | 0.04 | 0.13 | 0.39 | 0.44 |
| LOW | 167 | 1 | | | 0.10 | 0.14 | 0.50 | 0.26 |
| TEST SCORE MEANS | | | | | 22.58 | 26.76 | 23.71 | 28.07 |
| DISCRIMINATING POWER | | | | | -0.07 | 0.03 | -0.34 | 0.38 |
| STANDARD ERROR OF D.P. | | | | | 0.00 | 0.00 | 0.01 | 0.01 |

ITEM 16: DIF=0.429, RPB= 0.054, CRPB= -0.025 (95% CON= -0.101, 0.051)
RBIS= 0.068, CRBIS=-0.032, IRI=0.027

| GROUP | N | INV | NF | OMIT | 1 | 2 | 3* | 4 |
|---|---|---|---|---|---|---|---|---|
| TOTAL | 664 | 6 | 0 | 0 | 0.18 | 0.31 | 0.43 | 0.07 |
| HIGH | 194 | 0 | | | 0.18 | 0.35 | 0.46 | 0.01 |
| MID | 303 | 2 | | | 0.18 | 0.32 | 0.43 | 0.06 |
| LOW | 167 | 4 | | | 0.17 | 0.23 | 0.40 | 0.17 |
| TEST SCORE MEANS | | | | | 26.03 | 26.98 | 26.44 | 20.84 |
| DISCRIMINATING POWER | | | | | 0.01 | 0.12 | 0.06 | -0.16 |
| STANDARD ERROR OF D.P. | | | | | 0.00 | 0.01 | 0.01 | 0.00 |

ITEM 17: DIF=0.581, RPB= 0.332, CRPB= 0.253 (95% CON= 0.180, 0.322)
RBIS= 0.419, CRBIS= 0.319, IRI=0.164

| GROUP | N | INV | NF | OMIT | 1 | 2* | 3 | 4 |
|---|---|---|---|---|---|---|---|---|
| TOTAL | 664 | 0 | 0 | 0 | 0.13 | 0.58 | 0.24 | 0.05 |
| HIGH | 194 | 0 | | | 0.09 | 0.80 | 0.10 | 0.0 |
| MID | 303 | 0 | | | 0.12 | 0.54 | 0.28 | 0.06 |
| LOW | 167 | 0 | | | 0.18 | 0.40 | 0.32 | 0.10 |
| TEST SCORE MEANS | | | | | 24.37 | 27.80 | 23.67 | 21.56 |
| DISCRIMINATING POWER | | | | | -0.09 | 0.41 | -0.22 | -0.10 |
| STANDARD ERROR OF D.P. | | | | | 0.00 | 0.01 | 0.01 | 0.00 |

ITEM 18: DIF=0.437, RPB= 0.085, CRPB= 0.006 (95% CON= -0.070, 0.082)
RBIS= 0.107, CRBIS= 0.007, IRI=0.042

| GROUP | N | INV | NF | OMIT | 1 | 2 | 3* | 4 |
|---|---|---|---|---|---|---|---|---|
| TOTAL | 664 | 4 | 0 | 0 | 0.16 | 0.17 | 0.44 | 0.22 |
| HIGH | 194 | 1 | | | 0.19 | 0.12 | 0.48 | 0.21 |
| MID | 303 | 0 | | | 0.16 | 0.17 | 0.44 | 0.23 |
| LOW | 167 | 3 | | | 0.15 | 0.23 | 0.38 | 0.23 |
| TEST SCORE MEANS | | | | | 26.59 | 24.45 | 26.65 | 25.89 |
| DISCRIMINATING POWER | | | | | 0.04 | -0.10 | 0.10 | -0.02 |
| STANDARD ERROR OF D.P. | | | | | 0.00 | 0.00 | 0.01 | 0.01 |

ITEM 19: DIF=0.154, RPB= 0.330, CRPB= 0.272 (95% CON= 0.200, 0.341)
RBIS= 0.502, CRBIS= 0.415, IRI=0.119

| GROUP | N | INV | NF | OMIT | 1* | 2 | 3 | 4 |
|---|---|---|---|---|---|---|---|---|
| TOTAL | 664 | 1 | 0 | 0 | 0.15 | 0.71 | 0.11 | 0.03 |
| HIGH | 194 | 0 | | | 0.34 | 0.54 | 0.10 | 0.02 |
| MID | 303 | 0 | | | 0.08 | 0.79 | 0.12 | 0.02 |
| LOW | 167 | 1 | | | 0.08 | 0.77 | 0.10 | 0.05 |
| TEST SCORE MEANS | | | | | 30.88 | 25.16 | 26.14 | 21.94 |
| DISCRIMINATING POWER | | | | | 0.26 | -0.23 | 0.01 | -0.04 |
| STANDARD ERROR OF D.P. | | | | | 0.01 | 0.01 | 0.00 | 0.00 |

ITEM 20: DIF=0.247, RPB= 0.279, CRPB= 0.210 (95% CON= 0.136, 0.281)
RBIS= 0.381, CRBIS= 0.286, IRI=0.120

| GROUP | N | INV | NF | OMIT | 1 | 2 | 3* | 4 |
|---|---|---|---|---|---|---|---|---|
| TOTAL | 664 | 1 | 0 | 0 | 0.28 | 0.27 | 0.25 | 0.20 |
| HIGH | 194 | 0 | | | 0.24 | 0.21 | 0.42 | 0.13 |
| MID | 303 | 0 | | | 0.29 | 0.30 | 0.19 | 0.22 |
| LOW | 167 | 1 | | | 0.32 | 0.29 | 0.14 | 0.24 |
| TEST SCORE MEANS | | | | | 25.34 | 25.21 | 29.09 | 24.47 |
| DISCRIMINATING POWER | | | | | -0.08 | -0.08 | 0.28 | -0.11 |
| STANDARD ERROR OF D.P. | | | | | 0.01 | 0.01 | 0.01 | 0.00 |

ITEM 21: DIF=0.375, RPB= 0.200, CRPB= 0.123 (95% CON= 0.047, 0.197)
RBIS= 0.256, CRBIS= 0.157, IRI=0.097

| GROUP | N | INV | NF | OMIT | 1 | 2 | 3* | 4 |
|---|---|---|---|---|---|---|---|---|
| TOTAL | 664 | 4 | 0 | 0 | 0.10 | 0.33 | 0.38 | 0.20 |
| HIGH | 194 | 0 | | | 0.04 | 0.28 | 0.53 | 0.15 |
| MID | 303 | 2 | | | 0.10 | 0.37 | 0.31 | 0.20 |
| LOW | 167 | 2 | | | 0.15 | 0.29 | 0.31 | 0.23 |
| TEST SCORE MEANS | | | | | 23.92 | 25.77 | 27.66 | 24.71 |
| DISCRIMINATING POWER | | | | | -0.11 | -0.02 | 0.21 | -0.08 |
| STANDARD ERROR OF D.P. | | | | | 0.00 | 0.01 | 0.01 | 0.00 |

ITEM 22: DIF=0.113, RPB= 0.208, CRPB= 0.158 (95% CON= 0.083, 0.231)
RBIS= 0.344, CRBIS= 0.261, IRI=0.066

| GROUP | N | INV | NF | OMIT | 1 | 2* | 3 | 4 |
|---|---|---|---|---|---|---|---|---|
| TOTAL | 664 | 0 | 0 | 0 | 0.15 | 0.11 | 0.72 | 0.02 |
| HIGH | 194 | 0 | | | 0.12 | 0.21 | 0.66 | 0.01 |
| MID | 303 | 0 | | | 0.16 | 0.08 | 0.74 | 0.02 |
| LOW | 167 | 0 | | | 0.15 | 0.07 | 0.75 | 0.03 |
| TEST SCORE MEANS | | | | | 25.85 | 29.69 | 25.62 | 21.92 |
| DISCRIMINATING POWER | | | | | -0.03 | 0.14 | -0.09 | -0.02 |
| STANDARD ERROR OF D.P. | | | | | 0.00 | 0.00 | 0.01 | 0.00 |

ITEM 23: DIF=0.232, RPB= 0.084, CRPB= 0.016 (95% CON= -0.060, 0.092)
RBIS= 0.116, CRBIS= 0.023, IRI=0.035

| GROUP | N | INV | NF | OMIT | 1 | 2* | 3 | 4 |
|---|---|---|---|---|---|---|---|---|
| TOTAL | 664 | 1 | 0 | 0 | 0.47 | 0.23 | 0.19 | 0.11 |
| HIGH | 194 | 0 | | | 0.47 | 0.30 | 0.18 | 0.05 |
| MID | 303 | 0 | | | 0.52 | 0.18 | 0.19 | 0.11 |
| LOW | 167 | 1 | | | 0.35 | 0.24 | 0.22 | 0.18 |
| TEST SCORE MEANS | | | | | 26.66 | 27.00 | 25.27 | 22.92 |
| DISCRIMINATING POWER | | | | | 0.12 | 0.06 | -0.05 | -0.13 |
| STANDARD ERROR OF D.P. | | | | | 0.01 | 0.01 | 0.00 | 0.00 |

ITEM 24: DIF=0.566, RPB= 0.315, CRPB= 0.236 (95% CON= 0.163, 0.306)
RBIS= 0.397, CRBIS= 0.297, IRI=0.156

| GROUP | N | INV | NF | OMIT | 1 | 2* | 3 | 4 |
|---|---|---|---|---|---|---|---|---|
| TOTAL | 664 | 0 | 0 | 0 | 0.11 | 0.57 | 0.11 | 0.21 |
| HIGH | 194 | 0 | | | 0.04 | 0.77 | 0.04 | 0.15 |
| MID | 303 | 0 | | | 0.13 | 0.54 | 0.12 | 0.21 |
| LOW | 167 | 0 | | | 0.15 | 0.38 | 0.17 | 0.29 |
| TEST SCORE MEANS | | | | | 23.68 | 27.77 | 23.32 | 24.11 |
| DISCRIMINATING POWER | | | | | -0.11 | 0.38 | -0.13 | -0.14 |
| STANDARD ERROR OF D.P. | | | | | 0.00 | 0.01 | 0.00 | 0.01 |

ITEM 25: DIF=0.584, RPB= 0.388, CRPB= 0.309 (95% CON= 0.239, 0.377)
RBIS= 0.490, CRBIS= 0.391, IRI=0.191

| GROUP | N | INV | NF | OMIT | 1 | 2* | 3 | 4 |
|---|---|---|---|---|---|---|---|---|
| TOTAL | 664 | 2 | 0 | 0 | 0.09 | 0.58 | 0.04 | 0.28 |
| HIGH | 194 | 0 | | | 0.05 | 0.81 | 0.01 | 0.13 |
| MID | 303 | 1 | | | 0.06 | 0.59 | 0.05 | 0.30 |
| LOW | 167 | 1 | | | 0.18 | 0.32 | 0.07 | 0.43 |
| TEST SCORE MEANS | | | | | 22.41 | 28.09 | 22.33 | 23.59 |
| DISCRIMINATING POWER | | | | | -0.13 | 0.49 | -0.06 | -0.30 |
| STANDARD ERROR OF D.P. | | | | | 0.00 | 0.01 | 0.00 | 0.01 |

ITEM 26: DIF=0.670, RPB= 0.310, CRPB= 0.235 (95% CON= 0.162, 0.305)
RBIS= 0.403, CRBIS= 0.305, IRI=0.146

| GROUP | N | INV | NF | OMIT | 1* | 2 | 3 | 4 |
|---|---|---|---|---|---|---|---|---|
| TOTAL | 664 | 4 | 0 | 0 | 0.67 | 0.12 | 0.19 | 0.02 |
| HIGH | 194 | 0 | | | 0.84 | 0.05 | 0.11 | 0.0 |
| MID | 303 | 0 | | | 0.67 | 0.12 | 0.21 | 0.00 |
| LOW | 167 | 4 | | | 0.49 | 0.18 | 0.25 | 0.06 |
| TEST SCORE MEANS | | | | | 27.40 | 23.34 | 23.94 | 18.09 |
| DISCRIMINATING POWER | | | | | 0.35 | -0.13 | -0.14 | -0.06 |
| STANDARD ERROR OF D.P. | | | | | 0.01 | 0.00 | 0.00 | 0.00 |

ITEM 27: DIF=0.849, RPB= 0.410, CRPB= 0.353 (95% CON= 0.284, 0.418)
RBIS= 0.627, CRBIS= 0.540, IRI=0.147

| GROUP | N | INV | NF | OMIT | 1* | 2 | 3 | 4 |
|---|---|---|---|---|---|---|---|---|
| TOTAL | 664 | 2 | 0 | 0 | 0.85 | 0.04 | 0.06 | 0.05 |
| HIGH | 194 | 0 | | | 0.99 | 0.01 | 0.01 | 0.0 |
| MID | 303 | 0 | | | 0.90 | 0.03 | 0.03 | 0.04 |
| LOW | 167 | 2 | | | 0.59 | 0.09 | 0.17 | 0.14 |
| TEST SCORE MEANS | | | | | 27.12 | 20.54 | 19.74 | 20.17 |
| DISCRIMINATING POWER | | | | | 0.40 | -0.08 | -0.17 | -0.14 |
| STANDARD ERROR OF D.P. | | | | | 0.01 | 0.00 | 0.00 | 0.00 |

ITEM 28: DIF=0.209, RPB= 0.309, CRPB= 0.244 (95% CON= 0.171, 0.314)
RBIS= 0.437, CRBIS= 0.345, IRI=0.126

| GROUP | N | INV | NF | OMIT | 1 | 2 | 3 | 4* |
|---|---|---|---|---|---|---|---|---|
| TOTAL | 664 | 1 | 0 | 0 | 0.29 | 0.42 | 0.08 | 0.21 |
| HIGH | 194 | 0 | | | 0.30 | 0.27 | 0.01 | 0.42 |
| MID | 303 | 0 | | | 0.34 | 0.47 | 0.07 | 0.12 |
| LOW | 167 | 1 | | | 0.19 | 0.51 | 0.17 | 0.13 |
| TEST SCORE MEANS | | | | | 26.77 | 24.57 | 21.53 | 29.80 |
| DISCRIMINATING POWER | | | | | 0.11 | -0.24 | -0.16 | 0.30 |
| STANDARD ERROR OF D.P. | | | | | 0.01 | 0.01 | 0.00 | 0.01 |

ITEM 29: DIF=0.479, RPB= 0.172, CRPB= 0.091 (95% CON= 0.016, 0.166)
RBIS= 0.215, CRBIS= 0.115, IRI=0.086

| GROUP | N | INV | NF | OMIT | 1 | 2* | 3 | 4 |
|---|---|---|---|---|---|---|---|---|
| TOTAL | 664 | 2 | 0 | 0 | 0.28 | 0.48 | 0.10 | 0.14 |
| HIGH | 194 | 0 | | | 0.34 | 0.56 | 0.03 | 0.07 |
| MID | 303 | 0 | | | 0.26 | 0.50 | 0.09 | 0.15 |
| LOW | 167 | 2 | | | 0.23 | 0.35 | 0.19 | 0.22 |
| TEST SCORE MEANS | | | | | 27.10 | 27.16 | 22.06 | 23.21 |
| DISCRIMINATING POWER | | | | | 0.11 | 0.21 | -0.17 | -0.15 |
| STANDARD ERROR OF D.P. | | | | | 0.01 | 0.01 | 0.00 | 0.00 |

ITEM 30: DIF=0.581, RPB= 0.368, CRPB= 0.289 (95% CON= 0.218, 0.358)
RBIS= 0.465, CRBIS= 0.365, IRI=0.182

| GROUP | N | INV | NF | OMIT | 1 | 2 | 3 | 4* |
|---|---|---|---|---|---|---|---|---|
| TOTAL | 664 | 4 | 0 | 0 | 0.14 | 0.09 | 0.18 | 0.58 |
| HIGH | 194 | 0 | | | 0.09 | 0.02 | 0.12 | 0.76 |
| MID | 303 | 0 | | | 0.13 | 0.08 | 0.17 | 0.62 |
| LOW | 167 | 4 | | | 0.22 | 0.21 | 0.25 | 0.30 |
| TEST SCORE MEANS | | | | | 23.54 | 21.50 | 24.43 | 28.00 |
| DISCRIMINATING POWER | | | | | -0.13 | -0.19 | -0.12 | 0.46 |
| STANDARD ERROR OF D.P. | | | | | 0.00 | 0.00 | 0.00 | 0.01 |

ITEM 31: DIF=0.262, RPB= 0.223, CRPB= 0.152 (95% CON= 0.077, 0.226)
RBIS= 0.301, CRBIS= 0.206, IRI=0.098

| GROUP | N | INV | NF | OMIT | 1 | 2* | 3 | 4 |
|---|---|---|---|---|---|---|---|---|
| TOTAL | 664 | 2 | 0 | 0 | 0.16 | 0.26 | 0.15 | 0.43 |
| HIGH | 194 | 0 | | | 0.15 | 0.43 | 0.08 | 0.33 |
| MID | 303 | 0 | | | 0.17 | 0.19 | 0.17 | 0.47 |
| LOW | 167 | 2 | | | 0.14 | 0.19 | 0.19 | 0.47 |
| TEST SCORE MEANS | | | | | 26.43 | 28.38 | 24.29 | 25.18 |
| DISCRIMINATING POWER | | | | | 0.01 | 0.25 | -0.10 | -0.14 |
| STANDARD ERROR OF D.P. | | | | | 0.00 | 0.01 | 0.00 | 0.01 |

ITEM 32: DIF=0.369, RPB= 0.200, CRPB= 0.123 (95% CON= 0.047, 0.197)
RBIS= 0.256, CRBIS= 0.157, IRI=0.097

| GROUP | N | INV | NF | OMIT | 1 | 2 | 3 | 4* |
|---|---|---|---|---|---|---|---|---|
| TOTAL | 664 | 4 | 0 | 0 | 0.14 | 0.14 | 0.35 | 0.37 |
| HIGH | 194 | 0 | | | 0.12 | 0.05 | 0.34 | 0.50 |
| MID | 303 | 1 | | | 0.13 | 0.16 | 0.37 | 0.34 |
| LOW | 167 | 3 | | | 0.20 | 0.19 | 0.33 | 0.26 |
| TEST SCORE MEANS | | | | | 24.48 | 23.74 | 25.98 | 27.68 |
| DISCRIMINATING POWER | | | | | -0.08 | -0.15 | 0.01 | 0.24 |
| STANDARD ERROR OF D.P. | | | | | 0.00 | 0.00 | 0.01 | 0.01 |

ITEM 33: DIF=0.413, RPB= 0.376, CRPB= 0.297 (95% CON= 0.226, 0.365)
RBIS= 0.475, CRBIS= 0.376, IRI=0.185

| GROUP | N | INV | NF | OMIT | 1 | 2 | 3 | 4* |
|---|---|---|---|---|---|---|---|---|
| TOTAL | 664 | 1 | 0 | 0 | 0.14 | 0.10 | 0.34 | 0.41 |
| HIGH | 194 | 0 | | | 0.06 | 0.03 | 0.25 | 0.67 |
| MID | 303 | 0 | | | 0.12 | 0.10 | 0.42 | 0.36 |
| LOW | 167 | 1 | | | 0.27 | 0.19 | 0.32 | 0.21 |
| TEST SCORE MEANS | | | | | 22.69 | 21.72 | 25.36 | 28.85 |
| DISCRIMINATING POWER | | | | | -0.21 | -0.17 | -0.08 | 0.46 |
| STANDARD ERROR OF D.P. | | | | | 0.00 | 0.00 | 0.01 | 0.01 |

ITEM 34: DIF=0.401, RPB= 0.303, CRPB= 0.224 (95% CON= 0.151, 0.295)
RBIS= 0.384, CRBIS= 0.284, IRI=0.148

| GROUP | N | INV | NF | OMIT | 1 | 2 | 3 | 4* |
|---|---|---|---|---|---|---|---|---|
| TOTAL | 664 | 2 | 0 | 0 | 0.15 | 0.14 | 0.30 | 0.40 |
| HIGH | 194 | 0 | | | 0.06 | 0.11 | 0.22 | 0.61 |
| MID | 303 | 2 | | | 0.16 | 0.14 | 0.34 | 0.36 |
| LOW | 167 | 0 | | | 0.25 | 0.19 | 0.33 | 0.23 |
| TEST SCORE MEANS | | | | | 23.24 | 24.46 | 25.19 | 28.36 |
| DISCRIMINATING POWER | | | | | -0.19 | -0.07 | -0.11 | 0.37 |
| STANDARD ERROR OF D.P. | | | | | 0.00 | 0.00 | 0.01 | 0.01 |

ITEM 35: DIF=0.816, RPB= 0.285, CRPB= 0.223 (95% CON= 0.150, 0.294)
RBIS= 0.415, CRBIS= 0.325, IRI=0.110

| GROUP | N | INV | NF | OMIT | 1 | 2 | 3* | 4 |
|---|---|---|---|---|---|---|---|---|
| TOTAL | 664 | 2 | 0 | 0 | 0.12 | 0.03 | 0.82 | 0.03 |
| HIGH | 194 | 0 | | | 0.05 | 0.02 | 0.93 | 0.0 |
| MID | 303 | 0 | | | 0.12 | 0.04 | 0.82 | 0.02 |
| LOW | 167 | 2 | | | 0.22 | 0.02 | 0.68 | 0.07 |
| TEST SCORE MEANS | | | | | 22.27 | 25.60 | 26.89 | 19.16 |
| DISCRIMINATING POWER | | | | | -0.17 | -0.00 | 0.26 | -0.07 |
| STANDARD ERROR OF D.P. | | | | | 0.00 | 0.00 | 0.01 | 0.00 |

ITEM 36: DIF=0.431, RPB= 0.303, CRPB= 0.224 (95% CON= 0.151, 0.295)
RBIS= 0.382, CRBIS= 0.282, IRI=0.150

| GROUP | N | INV | NF | OMIT | 1 | 2 | 3* | 4 |
|---|---|---|---|---|---|---|---|---|
| TOTAL | 664 | 1 | 0 | 0 | 0.37 | 0.04 | 0.43 | 0.16 |
| HIGH | 194 | 0 | | | 0.28 | 0.01 | 0.62 | 0.09 |
| MID | 303 | 0 | | | 0.40 | 0.03 | 0.39 | 0.18 |
| LOW | 167 | 1 | | | 0.41 | 0.10 | 0.28 | 0.21 |
| TEST SCORE MEANS | | | | | 25.12 | 20.64 | 28.22 | 23.75 |
| DISCRIMINATING POWER | | | | | -0.13 | -0.09 | 0.34 | -0.12 |
| STANDARD ERROR OF D.P. | | | | | 0.01 | 0.00 | 0.01 | 0.00 |

ITEM 37: DIF=0.321, RPB= 0.221, CRPB= 0.146 (95% CON= 0.071, 0.220)
RBIS= 0.288, CRBIS= 0.190, IRI=0.103

| GROUP | N | INV | NF | OMIT | 1* | 2 | 3 | 4 |
|---|---|---|---|---|---|---|---|---|
| TOTAL | 664 | 3 | 0 | 0 | 0.32 | 0.46 | 0.14 | 0.08 |
| HIGH | 194 | 1 | | | 0.44 | 0.52 | 0.03 | 0.01 |
| MID | 303 | 0 | | | 0.33 | 0.47 | 0.13 | 0.07 |
| LOW | 167 | 2 | | | 0.16 | 0.36 | 0.29 | 0.18 |
| TEST SCORE MEANS | | | | | 28.05 | 26.95 | 21.48 | 21.06 |
| DISCRIMINATING POWER | | | | | 0.28 | 0.16 | -0.26 | -0.17 |
| STANDARD ERROR OF D.P. | | | | | 0.01 | 0.01 | 0.00 | 0.00 |

ITEM 38: DIF=0.492, RPB= 0.311, CRPB= 0.231 (95% CON= 0.158, 0.302)
RBIS= 0.390, CRBIS= 0.290, IRI=0.156

| GROUP | N | INV | NF | OMIT | 1 | 2 | 3* | 4 |
|---|---|---|---|---|---|---|---|---|
| TOTAL | 664 | 1 | 0 | 0 | 0.33 | 0.08 | 0.49 | 0.10 |
| HIGH | 194 | 0 | | | 0.14 | 0.05 | 0.64 | 0.16 |
| MID | 303 | 0 | | | 0.32 | 0.07 | 0.54 | 0.07 |
| LOW | 167 | 1 | | | 0.56 | 0.14 | 0.23 | 0.07 |
| TEST SCORE MEANS | | | | | 23.13 | 22.87 | 28.02 | 28.81 |
| DISCRIMINATING POWER | | | | | -0.42 | -0.09 | 0.42 | 0.10 |
| STANDARD ERROR OF D.P. | | | | | 0.01 | 0.00 | 0.01 | 0.00 |

ITEM 39: DIF=0.380, RPB= 0.342, CRPB= 0.264 (95% CON= 0.192, 0.333)
RBIS= 0.436, CRBIS= 0.337, IRI=0.166

| GROUP | N | INV | NF | OMIT | 1 | 2 | 3 | 4* |
|---|---|---|---|---|---|---|---|---|
| TOTAL | 664 | 9 | 0 | 0 | 0.09 | 0.22 | 0.30 | 0.38 |
| HIGH | 194 | 1 | | | 0.05 | 0.11 | 0.21 | 0.63 |
| MID | 303 | 2 | | | 0.11 | 0.26 | 0.32 | 0.30 |
| LOW | 167 | 6 | | | 0.11 | 0.26 | 0.37 | 0.23 |
| TEST SCORE MEANS | | | | | 23.40 | 24.31 | 24.89 | 28.77 |
| DISCRIMINATING POWER | | | | | -0.06 | -0.14 | -0.17 | 0.40 |
| STANDARD ERROR OF D.P. | | | | | 0.00 | 0.00 | 0.01 | 0.01 |

ITEM 40: DIF=0.215, RPB= 0.204, CRPB= 0.139 (95% CON= 0.063, 0.212)
RBIS= 0.287, CRBIS= 0.195, IRI=0.084

| GROUP | N | INV | NF | OMIT | 1 | 2 | 3* | 4 |
|---|---|---|---|---|---|---|---|---|
| TOTAL | 664 | 1 | 0 | 0 | 0.53 | 0.21 | 0.22 | 0.04 |
| HIGH | 194 | 0 | | | 0.51 | 0.14 | 0.32 | 0.03 |
| MID | 303 | 0 | | | 0.56 | 0.23 | 0.18 | 0.03 |
| LOW | 167 | 1 | | | 0.51 | 0.27 | 0.16 | 0.06 |
| TEST SCORE MEANS | | | | | 25.92 | 24.52 | 28.48 | 23.08 |
| DISCRIMINATING POWER | | | | | 0.00 | -0.13 | 0.17 | -0.03 |
| STANDARD ERROR OF D.P. | | | | | 0.01 | 0.00 | 0.01 | 0.00 |

ITEM 41: DIF=0.348, RPB= 0.189, CRPB= 0.112 (95% CON= 0.036, 0.187)
RBIS= 0.243, CRBIS= 0.145, IRI=0.090

| GROUP | N | INV | NF | OMIT | 1 | 2* | 3 | 4 |
|---|---|---|---|---|---|---|---|---|
| TOTAL | 664 | 1 | 0 | 0 | 0.37 | 0.35 | 0.04 | 0.24 |
| HIGH | 194 | 0 | | | 0.27 | 0.44 | 0.02 | 0.28 |
| MID | 303 | 1 | | | 0.39 | 0.36 | 0.03 | 0.22 |
| LOW | 167 | 0 | | | 0.46 | 0.23 | 0.08 | 0.23 |
| TEST SCORE MEANS | | | | | 24.80 | 27.66 | 21.52 | 26.35 |
| DISCRIMINATING POWER | | | | | -0.19 | 0.21 | -0.06 | 0.04 |
| STANDARD ERROR OF D.P. | | | | | 0.01 | 0.01 | 0.00 | 0.01 |

ITEM 42: DIF=0.544, RPB= 0.080, CRPB= 0.001 (95% CON= -0.075, 0.077)
RBIS= 0.101, CRBIS= 0.001, IRI=0.040

| GROUP | N | INV | NF | OMIT | 1* | 2 | 3 | 4 |
|---|---|---|---|---|---|---|---|---|
| TOTAL | 664 | 2 | 0 | 0 | 0.54 | 0.20 | 0.03 | 0.22 |
| HIGH | 194 | 0 | | | 0.55 | 0.14 | 0.02 | 0.29 |
| MID | 303 | 2 | | | 0.58 | 0.20 | 0.02 | 0.18 |
| LOW | 167 | 0 | | | 0.46 | 0.29 | 0.07 | 0.18 |
| TEST SCORE MEANS | | | | | 26.51 | 24.13 | 22.05 | 27.37 |
| DISCRIMINATING POWER | | | | | 0.09 | -0.15 | -0.06 | 0.11 |
| STANDARD ERROR OF D.P. | | | | | 0.01 | 0.01 | 0.00 | 0.01 |

ITEM 43: DIF=0.221, RPB= 0.270, CRPB= 0.203 (95% CON= 0.129, 0.275)
RBIS= 0.377, CRBIS= 0.284, IRI=0.112

| GROUP | N | INV | NF | OMIT | 1* | 2 | 3 | 4 |
|---|---|---|---|---|---|---|---|---|
| TOTAL | 664 | 6 | 0 | 0 | 0.22 | 0.36 | 0.19 | 0.23 |
| HIGH | 194 | 1 | | | 0.35 | 0.44 | 0.09 | 0.11 |
| MID | 303 | 0 | | | 0.21 | 0.33 | 0.21 | 0.25 |
| LOW | 167 | 5 | | | 0.10 | 0.30 | 0.26 | 0.31 |
| TEST SCORE MEANS | | | | | 29.20 | 26.90 | 23.71 | 23.81 |
| DISCRIMINATING POWER | | | | | 0.25 | 0.14 | -0.17 | -0.20 |
| STANDARD ERROR OF D.P. | | | | | 0.01 | 0.01 | 0.00 | 0.01 |

ITEM 44: DIF=0.304, RPB= 0.083, CRPB= 0.009 (95% CON= -0.067, 0.085)
RBIS= 0.109, CRBIS= 0.012, IRI=0.038

| GROUP | N | INV | NF | OMIT | 1 | 2* | 3 | 4 |
|---|---|---|---|---|---|---|---|---|
| TOTAL | 664 | 2 | 0 | 0 | 0.32 | 0.30 | 0.20 | 0.17 |
| HIGH | 194 | 0 | | | 0.25 | 0.37 | 0.16 | 0.21 |
| MID | 303 | 0 | | | 0.38 | 0.25 | 0.20 | 0.17 |
| LOW | 167 | 2 | | | 0.29 | 0.32 | 0.26 | 0.12 |
| TEST SCORE MEANS | | | | | 25.60 | 26.83 | 24.90 | 27.08 |
| DISCRIMINATING POWER | | | | | -0.03 | 0.05 | -0.09 | 0.09 |
| STANDARD ERROR OF D.P. | | | | | 0.01 | 0.01 | 0.01 | 0.00 |

ITEM 45: DIF=0.239, RPB= 0.173, CRPB= 0.105 (95% CON= 0.029, 0.180)
RBIS= 0.238, CRBIS= 0.144, IRI=0.074

| GROUP | N | INV | NF | OMIT | 1 | 2* | 3 | 4 |
|---|---|---|---|---|---|---|---|---|
| TOTAL | 664 | 5 | 0 | 0 | 0.47 | 0.24 | 0.20 | 0.08 |
| HIGH | 194 | 1 | | | 0.56 | 0.33 | 0.09 | 0.02 |
| MID | 303 | 0 | | | 0.51 | 0.21 | 0.22 | 0.06 |
| LOW | 167 | 4 | | | 0.31 | 0.19 | 0.29 | 0.19 |
| TEST SCORE MEANS | | | | | 27.05 | 27.97 | 23.47 | 21.44 |
| DISCRIMINATING POWER | | | | | 0.25 | 0.14 | -0.20 | -0.17 |
| STANDARD ERROR OF D.P. | | | | | 0.01 | 0.01 | 0.00 | 0.00 |

ITEM 46: DIF=0.080, RPB= -0.056, CRPB= -0.099 (95% CON= -0.174,-0.023)
RBIS=-0.102, CRBIS=-0.181, IRI=-.015

| GROUP | N | INV | NF | OMIT | 1* | 2 | 3 | 4 |
|---|---|---|---|---|---|---|---|---|
| TOTAL | 664 | 3 | 0 | 0 | 0.08 | 0.37 | 0.19 | 0.36 |
| HIGH | 194 | 0 | | | 0.06 | 0.49 | 0.14 | 0.30 |
| MID | 303 | 0 | | | 0.09 | 0.32 | 0.20 | 0.40 |
| LOW | 167 | 3 | | | 0.10 | 0.31 | 0.25 | 0.34 |
| TEST SCORE MEANS | | | | | 24.87 | 27.38 | 24.91 | 25.67 |
| DISCRIMINATING POWER | | | | | -0.04 | 0.19 | -0.10 | -0.03 |
| STANDARD ERROR OF D.P. | | | | | 0.00 | 0.01 | 0.00 | 0.01 |

ITEM 47: DIF=0.288, RPB= 0.076, CRPB= 0.003 (95% CON= -0.073, 0.079)
RBIS= 0.101, CRBIS= 0.004, IRI=0.034

| GROUP | N | INV | NF | OMIT | 1 | 2* | 3 | 4 |
|---|---|---|---|---|---|---|---|---|
| TOTAL | 664 | 3 | 0 | 0 | 0.09 | 0.29 | 0.09 | 0.53 |
| HIGH | 194 | 0 | | | 0.09 | 0.32 | 0.05 | 0.55 |
| MID | 303 | 0 | | | 0.09 | 0.29 | 0.07 | 0.55 |
| LOW | 167 | 3 | | | 0.09 | 0.25 | 0.19 | 0.46 |
| TEST SCORE MEANS | | | | | 25.63 | 26.79 | 22.92 | 26.32 |
| DISCRIMINATING POWER | | | | | -0.00 | 0.07 | -0.14 | 0.09 |
| STANDARD ERROR OF D.P. | | | | | 0.00 | 0.01 | 0.00 | 0.01 |

ITEM 48: DIF=0.298, RPB= 0.136, CRPB= 0.063 (95% CON= -0.013, 0.139)
RBIS= 0.180, CRBIS= 0.083, IRI=0.062

| GROUP | N | INV | NF | OMIT | 1 | 2 | 3 | 4* |
|---|---|---|---|---|---|---|---|---|
| TOTAL | 664 | 4 | 0 | 0 | 0.26 | 0.16 | 0.27 | 0.30 |
| HIGH | 194 | 0 | | | 0.14 | 0.10 | 0.38 | 0.38 |
| MID | 303 | 0 | | | 0.29 | 0.17 | 0.24 | 0.30 |
| LOW | 167 | 4 | | | 0.34 | 0.22 | 0.22 | 0.20 |
| TEST SCORE MEANS | | | | | 24.06 | 24.32 | 27.76 | 27.35 |
| DISCRIMINATING POWER | | | | | -0.20 | -0.11 | 0.16 | 0.17 |
| STANDARD ERROR OF D.P. | | | | | 0.01 | 0.00 | 0.01 | 0.01 |

ITEM 49: DIF=0.319, RPB= 0.111, CRPB= 0.036 (95% CON= -0.040, 0.112)
RBIS= 0.145, CRBIS= 0.047, IRI=0.052

| GROUP | N | INV | NF | OMIT | 1 | 2* | 3 | 4 |
|---|---|---|---|---|---|---|---|---|
| TOTAL | 664 | 6 | 0 | 0 | 0.08 | 0.32 | 0.53 | 0.06 |
| HIGH | 194 | 0 | | | 0.03 | 0.39 | 0.54 | 0.05 |
| MID | 303 | 0 | | | 0.08 | 0.30 | 0.57 | 0.05 |
| LOW | 167 | 6 | | | 0.15 | 0.27 | 0.44 | 0.10 |
| TEST SCORE MEANS | | | | | 22.09 | 27.06 | 26.45 | 23.76 |
| DISCRIMINATING POWER | | | | | -0.12 | 0.12 | 0.10 | -0.06 |
| STANDARD ERROR OF D.P. | | | | | 0.00 | 0.01 | 0.01 | 0.00 |

ITEM 50: DIF=0.666, RPB= 0.260, CRPB= 0.184 (95% CON= 0.110, 0.257)
RBIS= 0.337, CRBIS= 0.239, IRI=0.123

| GROUP | N | INV | NF | OMIT | 1 | 2 | 3* | 4 |
|---|---|---|---|---|---|---|---|---|
| TOTAL | 664 | 8 | 0 | 0 | 0.19 | 0.07 | 0.67 | 0.06 |
| HIGH | 194 | 0 | | | 0.12 | 0.04 | 0.81 | 0.02 |
| MID | 303 | 3 | | | 0.21 | 0.06 | 0.66 | 0.06 |
| LOW | 167 | 5 | | | 0.23 | 0.13 | 0.50 | 0.11 |
| TEST SCORE MEANS | | | | | 24.62 | 23.22 | 27.20 | 22.69 |
| DISCRIMINATING POWER | | | | | -0.11 | -0.08 | 0.32 | -0.09 |
| STANDARD ERROR OF D.P. | | | | | 0.00 | 0.00 | 0.01 | 0.00 |

ITEM 51: DIF=0.416, RPB= 0.293, CRPB= 0.214 (95% CON= 0.141, 0.286)
RBIS= 0.371, CRBIS= 0.271, IRI=0.145

| GROUP | N | INV | NF | OMIT | 1 | 2 | 3* | 4 |
|---|---|---|---|---|---|---|---|---|
| TOTAL | 664 | 18 | 0 | 0 | 0.28 | 0.06 | 0.42 | 0.22 |
| HIGH | 194 | 2 | | | 0.26 | 0.02 | 0.59 | 0.12 |
| MID | 303 | 5 | | | 0.29 | 0.06 | 0.40 | 0.23 |
| LOW | 167 | 11 | | | 0.31 | 0.10 | 0.24 | 0.29 |
| TEST SCORE MEANS | | | | | 25.44 | 22.79 | 28.22 | 24.18 |
| DISCRIMINATING POWER | | | | | -0.04 | -0.08 | 0.35 | -0.17 |
| STANDARD ERROR OF D.P. | | | | | 0.01 | 0.00 | 0.01 | 0.00 |

ITEM 52: DIF=0.470, RPB= 0.243, CRPB= 0.163 (95% CON= 0.088, 0.236)
RBIS= 0.305, CRBIS= 0.204, IRI=0.121

| GROUP | N | INV | NF | OMIT | 1 | 2 | 3* | 4 |
|---|---|---|---|---|---|---|---|---|
| TOTAL | 664 | 21 | 0 | 0 | 0.13 | 0.16 | 0.47 | 0.21 |
| HIGH | 194 | 3 | | | 0.09 | 0.09 | 0.59 | 0.21 |
| MID | 303 | 6 | | | 0.15 | 0.17 | 0.49 | 0.18 |
| LOW | 167 | 12 | | | 0.13 | 0.23 | 0.30 | 0.27 |
| TEST SCORE MEANS | | | | | 25.04 | 23.85 | 27.66 | 25.49 |
| DISCRIMINATING POWER | | | | | -0.04 | -0.13 | 0.29 | -0.06 |
| STANDARD ERROR OF D.P. | | | | | 0.00 | 0.00 | 0.01 | 0.01 |

ITEM 53: DIF=0.333, RPB= 0.390, CRPB= 0.315 (95% CON= 0.245, 0.382)
RBIS= 0.506, CRBIS= 0.409, IRI=0.184

| GROUP | N | INV | NF | OMIT | 1 | 2 | 3 | 4* |
|---|---|---|---|---|---|---|---|---|
| TOTAL | 664 | 17 | 0 | 0 | 0.29 | 0.07 | 0.28 | 0.33 |
| HIGH | 194 | 1 | | | 0.23 | 0.08 | 0.15 | 0.54 |
| MID | 303 | 6 | | | 0.28 | 0.06 | 0.30 | 0.34 |
| LOW | 167 | 10 | | | 0.37 | 0.09 | 0.40 | 0.09 |
| TEST SCORE MEANS | | | | | 24.71 | 25.50 | 23.92 | 29.50 |
| DISCRIMINATING POWER | | | | | -0.13 | -0.01 | -0.25 | 0.45 |
| STANDARD ERROR OF D.P. | | | | | 0.01 | 0.00 | 0.01 | 0.01 |

ITEM 54: DIF=0.708, RPB= 0.423, CRPB= 0.350 (95% CON= 0.282, 0.415)
RBIS= 0.560, CRBIS= 0.463, IRI=0.192

| GROUP | N | INV | NF | OMIT | 1 | 2* | 3 | 4 |
|---|---|---|---|---|---|---|---|---|
| TOTAL | 664 | 20 | 0 | 0 | 0.06 | 0.71 | 0.14 | 0.07 |
| HIGH | 194 | 2 | | | 0.0 | 0.94 | 0.03 | 0.02 |
| MID | 303 | 6 | | | 0.06 | 0.71 | 0.16 | 0.06 |
| LOW | 167 | 12 | | | 0.12 | 0.44 | 0.23 | 0.14 |
| TEST SCORE MEANS | | | | | 21.11 | 27.74 | 22.60 | 21.48 |
| DISCRIMINATING POWER | | | | | -0.12 | 0.51 | -0.20 | -0.12 |
| STANDARD ERROR OF D.P. | | | | | 0.00 | 0.01 | 0.00 | 0.00 |

ITEM 55: DIF=0.648, RPB= 0.380, CRPB= 0.304 (95% CON= 0.233, 0.371)
RBIS= 0.489, CRBIS= 0.391, IRI=0.182

| GROUP | N | INV | NF | OMIT | 1 | 2* | 3 | 4 |
|---|---|---|---|---|---|---|---|---|
| TOTAL | 664 | 24 | 0 | 0 | 0.12 | 0.65 | 0.12 | 0.08 |
| HIGH | 194 | 2 | | | 0.08 | 0.86 | 0.02 | 0.03 |
| MID | 303 | 8 | | | 0.12 | 0.66 | 0.11 | 0.09 |
| LOW | 167 | 14 | | | 0.19 | 0.38 | 0.25 | 0.10 |
| TEST SCORE MEANS | | | | | 23.95 | 27.80 | 21.61 | 23.71 |
| DISCRIMINATING POWER | | | | | -0.10 | 0.48 | -0.24 | -0.07 |
| STANDARD ERROR OF D.P. | | | | | 0.00 | 0.01 | 0.00 | 0.00 |

# APPENDIX E

## ANALYSIS OF STUDENT RESPONSES ON THE TCC-R SUB-TESTS

Table I

General Statistics for Student Responses to Sub-Test 1:
Individual Consumer in the Marketplace
(N = 664)

| Number of Questions in the Sub-Test = 5 | N of Correct Responses | Absolute Frequency | Relative Frequency (PCT) | Adjusted Frequency (PCT) | Cumulative Frequency (PCT) |
|---|---|---|---|---|---|
| | 0. | 7 | 1.1 | 1.1 | 1.1 |
| | 1. | 50 | 7.5 | 7.5 | 8.6 |
| | 2. | 135 | 20.3 | 20.3 | 28.9 |
| | 3. | 257 | 38.7 | 38.7 | 67.6 |
| | 4. | 169 | 25.5 | 25.5 | 93.1 |
| | 5. | 46 | 6.9 | 6.9 | 100.0 |
| | TOTAL | 664 | 100.0 | 100.0 | |

| | | | | | |
|---|---|---|---|---|---|
| Mean | 3.008 | Standard Error | 0.041 | Median | 3.045 |
| Mode | 3.000 | Standard Deviation | 1.064 | Variance | 1.133 |
| Kurtosis | -0.151 | Skewness | -0.256 | Range | 5.000 |
| Minimum | 0.0 | Maximum | 5.000 | | |
| Valid Cases | 664 | Missing Cases | 0 | | |

Table II

General Statistics for Student Responses to Sub-Test 2:
Money Management
(N = 664)

| Number of Questions in the Sub-Test = 4 | N of Correct Responses | Absolute Frequency | Relative Frequency (PCT) | Adjusted Frequency (PCT) | Cumulative Frequency (PCT) |
|---|---|---|---|---|---|
| | 0. | 73 | 11.0 | 11.0 | 11.0 |
| | 1. | 212 | 31.9 | 31.9 | 42.9 |
| | 2. | 218 | 32.8 | 32.8 | 75.8 |
| | 3. | 127 | 19.1 | 19.1 | 94.9 |
| | 4. | 34 | 5.1 | 5.1 | 100.0 |
| | TOTAL | 664 | 100.0 | 100.0 | |

| | | | | | |
|---|---|---|---|---|---|
| Mean | 1.755 | Standard Error | 0.041 | Median | 1.716 |
| Mode | 2.000 | Standard Deviation | 1.047 | Variance | 1.097 |
| Kurtosis | -0.569 | Skewness | 0.195 | Range | 4.000 |
| Minimum | 0.0 | Maximum | 4.000 | | |
| Valid Cases | 664 | Missing Cases | 0 | | |

Table III

General Statistics for Student Responses to Sub-Test 3:
Consumer Credit
(N = 664)

| Number of Questions in the Sub-Test = 5 | N of Correct Responses | Absolute Frequency | Relative Frequency (PCT) | Adjusted Frequency (PCT) | Cumulative Frequency (PCT) |
|---|---|---|---|---|---|
| | 0. | 25 | 3.8 | 3.8 | 3.8 |
| | 1. | 125 | 18.8 | 18.8 | 22.6 |
| | 2. | 220 | 33.1 | 33.1 | 55.7 |
| | 3. | 205 | 30.9 | 30.9 | 86.6 |
| | 4. | 77 | 11.6 | 11.6 | 98.2 |
| | 5. | 12 | 1.8 | 1.8 | 100.0 |
| | TOTAL | 664 | 100.0 | 100.0 | |

| | | | | | |
|---|---|---|---|---|---|
| Mean | 2.331 | Standard Error | 0.042 | Median | 2.327 |
| Mode | 2.000 | Standard Deviation | 1.080 | Variance | 1.166 |
| Kurtosis | -0.349 | Skewness | 0.033 | Range | 5.000 |
| Minimum | 0.0 | Maximum | 5.000 | | |
| Valid Cases | 664 | Missing Cases | 0 | | |

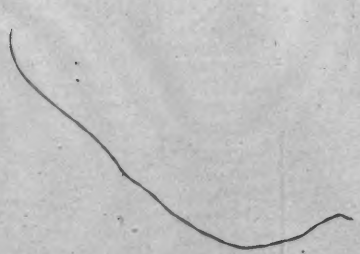

Table IV

General Statistics for Student Responses to Sub-Test 3:
Housing
(N = 664)

| Number of Questions in the Sub-Test = 4 | N of Correct Responses | Absolute Frequency | Relative Frequency (PCT) | Adjusted Frequency (PCT) | Cumulative Frequency (PCT) |
|---|---|---|---|---|---|
| | 0. | 63 | 9.5 | 9.5 | 9.5 |
| | 1. | 278 | 41.9 | 41.9 | 51.4 |
| | 2. | 275 | 41.4 | 41.4 | 92.8 |
| | 3. | 44 | 6.6 | 6.6 | 99.4 |
| | 4. | 4 | 0.6 | 0.6 | 100.0 |
| | TOTAL | 664 | 100.0 | 100.0 | |

| | | | | | |
|---|---|---|---|---|---|
| Mean | 1.470 | Standard Error | 0.030 | Median | 1.468 |
| Mode | 1.000 | Standard Deviation | 0.780 | Variance | 0.608 |
| Kurtosis | 0.006 | Skewness | 0.110 | Range | 4.000 |
| Minimum | 0.0 | Maximum | 4.000 | | |
| Valid Cases | 664 | Missing Cases | 0 | | |

Table V

General Statistics for Student Responses to Sub-Test 5:
Food
(N = 664)

| Number of Questions in the Sub-Test = 3 | N of Correct Responses | Absolute Frequency | Relative Frequency (PCT) | Adjusted Frequency (PCT) | Cumulative Frequency (PCT) |
|---|---|---|---|---|---|
| | 0. | 88 | 13.3 | 13.3 | 13.3 |
| | 1. | 269 | 40.5 | 40.5 | 53.8 |
| | 2. | 230 | 34.6 | 34.6 | 88.4 |
| | 3. | 77 | 11.6 | 11.6 | 100.0 |
| | TOTAL | 664 | 100.0 | 100.0 | |

| | | | | | |
|---|---|---|---|---|---|
| Mean | 1.446 | Standard Error | 0.033 | Median | 1.407 |
| Mode | 1.000 | Standard Deviation | 0.863 | Variance | 0.745 |
| Kurtosis | -0.640 | Skewness | 0.090 | Range | 3.000 |
| Minimum | 0.0 | Maximum | 3.000 | | |
| Valid Cases | 664 | Missing Cases | 0 | | |

Table VI

General Statistics for Student Responses to Sub-Test 6:
Transportation
(N = 664)

| Number of Questions in the Sub-Test = 3 | N of Correct Responses | Absolute Frequency | Relative Frequency (PCT) | Adjusted Frequency (PCT) | Cumulative Frequency (PCT) |
|---|---|---|---|---|---|
| | 0. | 46 | 6.9 | 6.9 | 6.9 |
| | 1. | 218 | 32.8 | 32.8 | 39.8 |
| | 2. | 314 | 47.3 | 47.3 | 87.0 |
| | 3. | 86 | 13.0 | 13.0 | 100.0 |
| | TOTAL | 664 | 100.0 | 100.0 | |

| | | | | | |
|---|---|---|---|---|---|
| Mean | 1.663 | Standard Error | 0.031 | Median | 1.717 |
| Mode | 2.000 | Standard Deviation | 0.789 | Variance | 0.622 |
| Kurtosis | -0.368 | Skewness | -0.176 | Range | 3.000 |
| Minimum | 0.0 | Maximum | 3.000 | | |
| Valid Cases | 664 | Missing Cases | 0 | | |

Table VII

General Statistics for Student Responses to Sub-Test 7:
Clothing
(N = 664)

| Number of Questions in the Sub-Test = 3 | N of Correct Responses | Absolute Frequency | Relative Frequency (PCT) | Adjusted Frequency (PCT) | Cumulative Frequency (PCT) |
|---|---|---|---|---|---|
| | 0. | 87 | 13.1 | 13.1 | 13.1 |
| | 1. | 251 | 37.8 | 37.8 | 50.9 |
| | 2. | 244 | 36.7 | 36.7 | 87.7 |
| | 3. | 82 | 12.3 | 12.3 | 100.0 |
| | TOTAL | 664 | 100.0 | 100.0 | |

| | | | | | |
|---|---|---|---|---|---|
| Mean | 1.483 | Standard Error | 0.034 | Median | 1.476 |
| Mode | 1.000 | Standard Deviation | 0.872 | Variance | 0.760 |
| Kurtosis | -0.678 | Skewness | 0.017 | Range | 3.000 |
| Minimum | 0.0 | Maximum | 3.000 | | |
| Valid Cases | 664 | Missing Cases | 0 | | |

Table VIII

General Statistics for Student Responses to Sub-Test 8:
Health Services, Drugs and Cosmetics
(N = 664)

| Number of Questions in the Sub-Test = 4 | N of Correct Responses | Absolute Frequency | Relative Frequency (PCT) | Adjusted Frequency (PCT) | Cumulative Frequency (PCT) |
|---|---|---|---|---|---|
| | 0. | 102 | 15.4 | 15.4 | 15.4 |
| | 1. | 217 | 32.7 | 32.7 | 48.0 |
| | 2. | 217 | 32.7 | 32.7 | 80.7 |
| | 3. | 121 | 18.2 | 18.2 | 98.9 |
| | 4. | 7 | 1.1 | 1.1 | 100.0 |
| | TOTAL | 664 | 100.0 | 100.0 | |

| | | | | | |
|---|---|---|---|---|---|
| Mean | 1.569 | Standard Error | 0.038 | Median | 1.560 |
| Mode | 1.000 | Standard Deviation | 0.991 | Variance | 0.982 |
| Kurtosis | -0.802 | Skewness | 0.059 | Range | 4.000 |
| Minimum | 0.0 | Maximum | 4.000 | | |
| Valid Cases | 664 | Missing Cases | 0 | | |

Table IX

General Statistics for Student Responses to Sub-Test 9:
Recreation
(N = 664)

| Number of Questions in the Sub-Test = 3 | N of Correct Responses | Absolute Frequency | Relative Frequency (PCT) | Adjusted Frequency (PCT) | Cumulative Frequency (PCT) |
|---|---|---|---|---|---|
| | 0. | 19 | 2.9 | 2.9 | 2.9 |
| | 1. | 168 | 25.3 | 25.3 | 28.2 |
| | 2. | 268 | 40.4 | 40.4 | 68.5 |
| | 3. | 209 | 31.5 | 31.5 | 100.0 |
| | TOTAL | 664 | 100.0 | 100.0 | |

| | | | | | |
|---|---|---|---|---|---|
| Mean | 2.005 | Standard Error | 0.032 | Median | 2.041 |
| Mode | 2.000 | Standard Deviation | 0.827 | Variance | 0.683 |
| Kurtosis | -0.787 | Skewness | -0.314 | Range | 3.000 |
| Minimum | 0.0 | Maximum | 3.000 | | |
| Valid Cases | 664 | Missing Cases | 0 | | |

Table X

General Statistics for Student Responses to Sub-Test 10:
Furnishings and Appliances
(N = 664)

| Number of Questions in the Sub-Test = 3 | N of Correct Responses | Absolute Frequency | Relative Frequency (PCT) | Adjusted Frequency (PCT) | Cumulative Frequency (PCT) |
|---|---|---|---|---|---|
| | 0. | 32 | 4.8 | 4.8 | 4.8 |
| | 1. | 140 | 21.1 | 21.1 | 25.9 |
| | 2. | 253 | 38.1 | 38.1 | 64.0 |
| | 3. | 239 | 36.0 | 36.0 | 100.0 |
| | TOTAL | 664 | 100.0 | 100.0 | |

| | | | | | |
|---|---|---|---|---|---|
| Mean | 2.053 | Standard Error | 0.034 | Median | 2.132 |
| Mode | 2.000 | Standard Deviation | 0.873 | Variance | 0.762 |
| Kurtosis | -0.569 | Skewness | -0.539 | Range | 3.000 |
| Minimum | 0.0 | Maximum | 3.000 | | |
| Valid Cases | 664 | Missing Cases | 0 | | |

Table XI

General Statistics for Student Responses to Sub-Test 11:
Insurance
(N = 664)

| Number of Questions in the Sub-Test = 5 | N of Correct Responses | Absolute Frequency | Relative Frequency (PCT) | Adjusted Frequency (PCT) | Cumulative Frequency (PCT) |
|---|---|---|---|---|---|
| | 0. | 52 | 7.8 | 7.8 | 7.8 |
| | 1. | 155 | 23.3 | 23.3 | 31.2 |
| | 2. | 211 | 31.8 | 31.8 | 63.0 |
| | 3. | 179 | 27.0 | 27.0 | 89.9 |
| | 4. | 53 | 8.0 | 8.0 | 97.9 |
| | 5. | 14 | 2.1 | 2.1 | 100.0 |
| | TOTAL | 664 | 100.0 | 100.0 | |

| | | | | | |
|---|---|---|---|---|---|
| Mean | 2.102 | Standard Error | 0.045 | Median | 2.092 |
| Mode | 2.000 | Standard Deviation | 1.148 | Variance | 1.317 |
| Kurtosis | -0.349 | Skewness | 0.141 | Range | 5.000 |
| Minimum | 0.0 | Maximum | 5.000 | | |
| Valid Cases | 664 | Missing Cases | 0 | | |

Table XII

General Statistics for Student Responses to Sub-Test 12:
Savings and Investments
(N = 664)

| Number of Questions in the Sub-Test = 4 | N of Correct Responses | Absolute Frequency | Relative Frequency (PCT) | Adjusted Frequency (PCT) | Cumulative Frequency (PCT) |
|---|---|---|---|---|---|
| | 0. | 190 | 28.6 | 28.6 | 28.6 |
| | 1. | 278 | 41.9 | 41.9 | 70.5 |
| | 2. | 153 | 23.0 | 23.0 | 93.5 |
| | 3. | 41 | 6.2 | 6.2 | 99.7 |
| | 4. | 2 | 0.3 | 0.3 | 100.0 |
| | TOTAL | 664 | 100.0 | 100.0 | |

| | | | | | |
|---|---|---|---|---|---|
| Mean | 1.077 | Standard Error | 0.034 | Median | 1.011 |
| Mode | 1.000 | Standard Deviation | 0.887 | Variance | 0.786 |
| Kurtosis | -0.369 | Skewness | 0.488 | Range | 4.000 |
| Minimum | 0.0 | Maximum | 4.000 | | |
| Valid Cases | 664 | Missing Cases | 0 | | |

Table XIII

General Statistics for Student Responses to Sub-Test 13:
Taxes
(N = 664)

| Number of Questions in the Sub-Test = 4 | N of Correct Responses | Absolute Frequency | Relative Frequency (PCT) | Adjusted Frequency (PCT) | Cumulative Frequency (PCT) |
|---|---|---|---|---|---|
| | 0. | 141 | 21.2 | 21.2 | 21.2 |
| | 1. | 253 | 38.1 | 38.1 | 59.3 |
| | 2. | 207 | 31.2 | 31.2 | 90.5 |
| | 3. | 60 | 9.0 | 9.0 | 99.5 |
| | 4. | 3 | 0.5 | 0.5 | 100.0 |
| | TOTAL | 664 | 100.0 | 100.0 | |

| | | | | | |
|---|---|---|---|---|---|
| Mean | 1.294 | Standard Error | 0.036 | Median | 1.255 |
| Mode | 1.000 | Standard Deviation | 0.917 | Variance | 0.841 |
| Kurtosis | -0.609 | Skewness | 0.233 | Range | 4.000 |
| Minimum | 0.0 | Maximum | 4.000 | | |
| Valid Cases | 664 | Missing Cases | 0 | | |

Table XIV

General Statistics for Student Responses to Sub-Test 14:
Consumer in Society
(N = 664)

| Number of Questions in the Sub-Test = 5 | N of Correct Responses | Absolute Frequency | Relative Frequency (PCT) | Adjusted Frequency (PCT) | Cumulative Frequency (PCT) |
|---|---|---|---|---|---|
| | 0. | 26 | 3.9 | 3.9 | 3.9 |
| | 1. | 98 | 14.8 | 14.8 | 18.7 |
| | 2. | 194 | 29.2 | 29.2 | 47.9 |
| | 3. | 210 | 31.6 | 31.6 | 79.5 |
| | 4. | 108 | 16.3 | 16.3 | 95.8 |
| | 5. | 28 | 4.2 | 4.2 | 100.0 |
| | TOTAL | 664 | 100.0 | 100.0 | |

| | | | | | |
|---|---|---|---|---|---|
| Mean | 2.542 | Standard Error | 0.045 | Median | 2.567 |
| Mode | 3.000 | Standard Deviation | 1.166 | Variance | 1.359 |
| Kurtosis | -0.395 | Skewness | -0.045 | Range | 5.000 |
| Minimum | 0.0 | Maximum | 5.000 | | |
| Valid Cases | 664 | Missing Cases | 0 | | |

# APPENDIX F

# TABLES

Table 25

Mean Scores of Students on the TCC-R
Classed Under Different Employment, S-E-S, and
Perceived Exposure to Consumer Education Categories
(N = 592)

CEA - Students

| | Hours of Employment | | | | |
|---|---|---|---|---|---|
| Socio-Economic Status | 0 | 1-5 | 6-12 | 13-20 | 20+ |
| Low | 24.20 (69) | 28.00 ( 7) | 26.39 ( 18) | 28.80 ( 15) | 27.08 ( 12) |
| Middle | 26.25 ( 63) | 25.00 ( 10) | 26.32 ( 22) | 29.00 ( 20) | 30.14 ( 7) |
| High | 27.05 ( 55) | 29.44 ( 9) | 27.42 ( 26) | 29.75 ( 12) | 25.71 ( 7) |

CEU - Students

| | Hours of Employment | | | | |
|---|---|---|---|---|---|
| Socio-Economic Status | 0 | 1-5 | 6-12 | 13-20 | 20+ |
| Low | 22.69 ( 48) | 23.40 ( 5) | 23.55 ( 11) | 22.00 ( 3) | 25.00 ( 9) |
| Middle | 24.62 ( 52) | 21.29 ( 7) | 29.38 ( 13) | 28.43 ( 7) | 28.71 ( 7) |
| High | 25.07 ( 42) | 28.09 ( 11) | 26.69 ( 16) | 31.50 ( 4) | 26.00 ( 5) |

Note: Cell totals given in parentheses.

Table 26

Analysis of Variance of Students' Mean Scores on the TCC-R
(N = 592)

| Source of Variation | Sum of Squares | df | Mean Square | F | Significance of F |
|---|---|---|---|---|---|
| Main Effects | | | | | |
| S-E-S | 561.790 | 2 | 280.630 | 8.152 | 0.000 |
| V3[a] | 772.623 | 4 | 193.156 | 5.611 | 0.000 |
| V33[b] | 275.189 | 1 | 275.189 | 7.994 | 0.005 |
| 2-Way Interaction | | | | | |
| S-E-S V3 | 398.431 | 8 | 49.804 | 1.073 | 0.379 |
| S-E-S V33 | 46.631 | 2 | 23.316 | 0.677 | 0.508 |
| V3 V33 | 79.900 | 4 | 19.975 | 0.580 | 0.677 |
| 3-Way Interactions | | | | | |
| S-E-S V3 V33 | 233.366 | 8 | 29.171 | 0.847 | 0.561 |
| Between | 2485.227 | 29 | 85.697 | 2.489 | 0.000 |
| Within | 19346.836 | 562 | 34.425 | | |
| Total | 21832.063 | 591 | | | |

[a] V3 = weekly hours of employment
[b] V33 = perceived exposure to consumer education

Table 27

Summary of Multiple Classification Analysis of Students' Mean Scores on the TCC-R (N = 592)

| Variable & Category | N | Unadjusted Dev'n | ETA | Adjusted for Independent Dev'n | BETA |
|---|---|---|---|---|---|
| SES | | | | | |
| Low | 197 | -1.35 | | -1.33 | |
| Middle | 208 | 0.38 | | 0.34 | |
| High | 187 | 1.00 | | 1.02 | |
| | | | 0.16 | | 0.16 |
| Employment | | | | | |
| 0 hours | 329 | -0.96 | | -0.87 | |
| 1 - 5 hours | 49 | 0.25 | | 0.13 | |
| 6 - 12 hours | 106 | 0.75 | | 0.56 | |
| 13 - 20 hours | 61 | 2.86 | | 2.59 | |
| 20 + hours | 47 | 1.07 | | 1.36 | |
| | | | 0.21 | | 0.19 |
| Perceived Exposure | | | | | |
| CEAS | 352 | 0.64 | | 0.57 | |
| CEUS | 240 | -0.94 | | -0.83 | |
| | | | 0.13 | | 0.11 |
| Multiple $R^2$ | | | | | 0.079 |
| Multiple R | | | | | 0.282 |

Note: The grand mean in this analysis = 25.99

Table 28

Mean Scores of Students on the TCC-R
Classed Under Different Employment, Grade and
Perceived Exposure to Consumer Education Categories
(N = 634)

CEA - Students

| | Hours of Employment | | | | |
|---|---|---|---|---|---|
| Grade | 0 | 1-5 | 6-12 | 13-20 | 20+ |
| 9 | 22.79<br>( 95) | 24.11<br>( 19) | 22.59<br>( 17) | 22.86<br>( 7) | 23.71<br>( 7) |
| 11 | 28.44<br>( 89) | 29.89<br>( 9) | 27.65<br>( 52) | 29.53<br>( 38) | 28.94<br>( 18) |
| 12 | 27.07<br>( 14) | 33.00<br>( 2) | 24.00<br>( 2) | 33.00<br>( 4) | 28.50<br>( 2) |

CEU - Students

| | Hours of Employment | | | | |
|---|---|---|---|---|---|
| Grade | 0 | 1-5 | 6-12 | 13-20 | 20+ |
| 9 | 23.02<br>(120) | 23.29<br>( 17) | 27.27<br>( 22) | 20.25<br>( 4) | 20.80<br>( 5) |
| 11 | 28.03<br>( 29) | 28.56<br>( 9) | 26.06<br>( 18) | 29.31<br>( 16) | 27.73<br>( 15) |
| 12 | 0.0<br>( 0) | 0.0<br>( 0) | 28.00<br>( 1) | 17.00<br>( 1) | 26.00<br>( 2) |

Table 29

Analysis of Variance of Students' Mean Scores on the TCC-R
(N = 634)

| Source of Variation | Sum of Squares | df | Mean Square | F | Significance of F |
|---|---|---|---|---|---|
| **Main Effects** | | | | | |
| Main Effects | 4152.109 | 7 | 593.158 | 18.686 | 0.000 |
| V33[a] | 2.189 | 1 | 2.189 | 0.069 | 0.793 |
| V3[b] | 101.518 | 4 | 25.379 | 0.800 | 0.526 |
| Grade | 3100.446 | 2 | 1550.223 | 48.837 | 0.000 |
| 2-Way Interactions | 579.758 | 14 | 41.411 | 1.305 | 0.199 |
| V33 V3 | 84.941 | 4 | 21.235 | 0.669 | 0.614 |
| V33 Grade | 94.151 | 2 | 47.076 | 1.483 | 0.228 |
| V3 Grade | 284.967 | 8 | 35.621 | 1.122 | 0.346 |
| 3-Way Interactions | 336.000 | 6 | 56.000 | 1.764 | 0.104 |
| V33 V3 Grade | 335.999 | 6 | 56.000 | 1.764 | 0.104 |
| Between | 5067.867 | 27 | 187.699 | 5.913 | 0.000 |
| Within | 19236.285 | 606 | 31.743 | | |
| Total | 24304.152 | 633 | 38.395 | | |

[a] V33 = perceived exposure to consumer education
[b] V3 = weekly hours of employment

Table 30

Summary of Multiple Classification Analysis
of Students' Mean Scores on the TCC-R
(N = 634)

| Variable & Category | N | Unadjusted Dev'n | ETA | Adjusted for Independents Dev'n | BETA |
|---|---|---|---|---|---|
| V33 | | | | | |
| Yes | 375 | 0.58 | | 0.05 | |
| No | 259 | -0.84 | | -0.07 | |
| | | | 0.11 | | 0.01 |
| V3 | | | | | |
| 0 hours | 347 | -0.88 | | -0.25 | |
| 1 - 5 hours | 56 | 0.02 | | 0.75 | |
| 6 - 12 hours | 112 | 0.69 | | -0.05 | |
| 13 - 20 hours | 70 | 2.49 | | 0.84 | |
| 20 + hours | 49 | 1.05 | | -0.15 | |
| | | | 0.18 | | 0.07 |
| Grade | | | | | |
| 9 | 313 | -2.56 | | -2.47 | |
| 11 | 293 | 2.54 | | 2.45 | |
| 12 | 28 | 2.02 | | 1.93 | |
| | | | 0.41 | | 0.39 |
| Multiple $R^2$ | | | | | 0.171 |
| Multiple R | | | | | 0.413 |

a V33 = perceived exposure to consumer education
b V3 = weekly hours of employement

Note: The grand mean in this analysis = 25.81.

Table 31

Mean Scores of Students on the TCC-R
Classed Under Different Employment, High School Programs and
Perceived Exposure to Consumer Education Categories
(N = 321)

CEA - Students

| | Hours of Employment | | | | |
|---|---|---|---|---|---|
| School Program | 0 | 1-5 | 6-12 | 13-20 | 20+ |
| Academic | 29.75 ( 60) | 30.22 ( 9) | 29.11 ( 37) | 31.55 ( 31) | 30.80 ( 10) |
| Non-Academic | 26.16 ( 43) | 31.50 ( 2) | 24.06 ( 17) | 25.09 ( 11) | 27.00 ( 10) |

CEU - Students

| | Hours of Employment | | | | |
|---|---|---|---|---|---|
| School Program | 0 | 1-5 | 6-12 | 13-20 | 20+ |
| Academic | 28.24 ( 25) | 28.20 ( 5) | 28.55 ( 11) | 29.79 ( 14) | 28.70 ( 10) |
| Non-Academic | 26.75 ( 4) | 29.00 ( 4) | 22.88 ( 8) | 23.00 ( 3) | 25.86 ( 7) |

Table 32

Analysis of Variance of High School Students' Mean Scores on the TCC-R (N = 321)

| Source of Variation | Sum of Squares | df | Mean Square | F | Significance of F |
|---|---|---|---|---|---|
| Main Effects | 1404.270 | 6 | 234.045 | 8.603 | 0.000 |
| ACNAC[a] | 1131.404 | 1 | 1131.404 | 41.589 | 0.000 |
| V3[b] | 187.575 | 4 | 46.894 | 1.724 | 0.145 |
| V33[c] | 108.707 | 1 | 108.707 | 3.996 | 0.047 |
| 2-Way Interactions | 213.572 | 9 | 23.730 | 0.872 | 0.550 |
| ACNAC V3 | 199.682 | 4 | 49.920 | 1.835 | 0.122 |
| ACNAC V33 | 2.537 | 1 | 2.537 | 0.093 | 0.760 |
| V3 V33 | 11.511 | 4 | 2.878 | 0.106 | 0.980 |
| 3-Way Interactions | 14.560 | 4 | 3.640 | 0.134 | 0.970 |
| ACNAC V3 V33 | 14.560 | 4 | 3.640 | 0.134 | 0.970 |
| Between | 1632.402 | 19 | 85.916 | 3.158 | 0.000 |
| Within | 8188.516 | 301 | 27.204 | | |
| Total | 9820.918 | 320 | 30.690 | | |

a ACNAC = school program as academic or non-academic
b V3 = weekly hours of employment
c V33 = perceived exposure to consumer education

Table 33

Multiple Classification Analysis of High School Students' Mean Scores on the TCC-R (N = 321)

| Variable & Category | N | Unadjusted Dev'n | ETA | Adjusted for Independent Dev'n | BETA |
|---|---|---|---|---|---|
| ACNAC | | | | | |
| Academic | 212 | 1.35 | | 1.36 | |
| Non-Academic | 109 | -2.62 | | -2.65 | |
| | | | 0.34 | | 0.34 |
| V3 | | | | | |
| 0 hours | 132 | -0.09 | | -0.11 | |
| 1 - 5 hours | 20 | 1.30 | | 1.36 | |
| 6 - 12 hours | 73 | -1.13 | | | |
| 13 - 20 hours | 59 | 1.19 | | 0.79 | |
| 20 + | 37 | -0.03 | | 0.68 | |
| | | | 0.15 | | 0.14 |
| V33 | | | | | |
| Yes | 230 | 0.24 | | 0.37 | |
| No | 91 | -0.60 | | -0.94 | |
| | | | 0.07 | | 0.11 |
| Multiple $R^2$ | | | | | 0.143 |
| Multiple R | | | | | 0.378 |

Note: The grand mean in this analysis = 28.30.

Table 34

Mean Scores of Students on the TCC-R
Classed Under High School Different Programs, S-E-S, and
Perceived Exposure to Consumer Education Categories
(N = 303)

CEA - Students

| Socio-Economic Status | Type of School Program | |
|---|---|---|
| | Academic | Non-Academic |
| Low | 29.98 ( 44) | 25.45 ( 29) |
| Middle | 30.20 ( 45) | 26.68 ( 34) |
| High | 30.00 ( 51) | 25.35 ( 17) |

CEU - Students

| Socio-Economic Status | Type of School Program | |
|---|---|---|
| | Academic | Non-Academic |
| Low | 27.00 ( 12) | 25.78 ( 9) |
| Middle | 28.42 ( 24) | 25.50 ( 10) |
| High | 29.65 ( 23) | 21.60 ( 5) |

Table 35

Analysis of Variance of High School Students' Mean Scores on the TCC-R (N = 303)

| Source of Variation | Sum of Squares | df | Mean Square | F | Significance of F |
|---|---|---|---|---|---|
| Main Effects | 1192.371 | 4 | 298.093 | 11.072 | 0.000 |
| SES | 18.507 | 2 | 9.253 | 0.344 | 0.709 |
| ACNAC[a] | 1081.837 | 1 | 1081.837 | 40.182 | 0.000 |
| V33[b] | 116.217 | 1 | 116.217 | 4.317 | 0.039 |
| 2-Way Interactions | 58.191 | 5 | 11.638 | 0.432 | 0.826 |
| SES ACNAC | 48.216 | 2 | 24.108 | 0.895 | 0.410 |
| SES V33 | 5.370 | 2 | 2.685 | 0.100 | 0.905 |
| ACNAC V33 | 2.653 | 1 | 2.653 | 0.099 | 0.754 |
| 3-Way Interactions | 78.722 | 2 | 39.361 | 1.462 | 0.233 |
| SES ACNAC V33 | 78.722 | 2 | 39.361 | 1.462 | 0.233 |
| Between | 1329.285 | 11 | 120.844 | 4.488 | 0.000 |
| Within | 7834.641 | 291 | 26.923 | | |
| Total | 9163.926 | 302 | 30.344 | | |

[a] ACNAC = school program as academic or non-academic
[b] V33 = perceived exposure to consumer education

Table 36

Summary of Multiple Classification Analysis of High School Students' Mean Scores on the TCC-R
(N = 303)

| Variable & Category | N | Unadjusted Dev'n | ETA | Adjusted for Independents Dev'n | BETA |
|---|---|---|---|---|---|
| SES | | | | | |
| Low | 94 | -0.48 | | -0.30 | |
| Middle | 113 | 0.07 | | 0.30 | |
| High | 96 | 0.38 | | -0.05 | |
| | | | 0.06 | | 0.05 |
| ACNAC | | | | | |
| Academic | 199 | 1.35 | | 1.39 | |
| Non-Academic | 104 | -2.59 | | -2.66 | |
| | | | 0.34 | | 0.35 |
| V33 | | | | | |
| Yes | 220 | 0.29 | | 0.38 | |
| No | 83 | -0.77 | | -1.01 | |
| | | | 0.09 | | 0.11 |
| Multiple R Squared | | | | | 0.130 |
| Multiple R | | | | | 0.361 |

Note: The grand mean in this analysis = 28.27.

Table 37

Mean Scores of Students on the TCC-R Classed Under Different High School Programs, S-E-S, and Hours of Employment Categories (N = 314)

| Academic Program | | | | | |
|---|---|---|---|---|---|
| | Hours of Employment | | | | |
| Socio-Economic Status | 0 | 1-5 | 6-12 | 13-20 | 20+ |
| Low | 29.35 ( 26) | 28.00 ( 2) | 27.46 ( 13) | 30.91 ( 11) | 28.50 ( 8) |
| Middle | 29.00 ( 27) | 27.40 ( 5) | 27.94 ( 16) | 30.56 ( 16) | 33.78 ( 9) |
| High | 29.17 ( 29) | 31.71 ( 7) | 30.19 ( 21) | 31.50 ( 14) | 28.67 ( 6) |
| **Non-Academic Program** | | | | | |
| | Hours of Employment | | | | |
| Socio-Economic Status | 0 | 1-5 | 6-12 | 13-20 | 20+ |
| Low | 26.00 ( 12) | 28.50 ( 2) | 24.11 ( 9) | 25.25 ( 4) | 26.30 ( 10) |
| Middle | 26.38 ( 24) | 31.50 ( 2) | 24.50 ( 8) | 27.57 ( 7) | 27.50 ( 4) |
| High | 26.64 ( 11) | 24.00 ( 1) | 20.83 ( 6) | 19.00 ( 1) | 26.00 ( 3) |

Table 38

Analysis of Variance of High School Students' Mean Scores on the TCC-R (N = 314)

| Source of Variation | Sum of Squares | df | Mean Square | F | Significance of F |
|---|---|---|---|---|---|
| Main Effects | 1275.947 | 7 | 182.278 | 6.433 | 0.000 |
| SES | 25.405 | 2 | 12.703 | 0.448 | 0.639 |
| ACNAC[a] | 931.903 | 1 | 931.903 | 32.888 | 0.000 |
| V3[b] | 244.468 | 4 | 61.117 | 2.157 | 0.074 |
| 2-Way Interactions | 319.127 | 14 | 22.795 | 0.804 | 0.664 |
| SES ACNAC | 71.758 | 2 | 35.879 | 1.266 | 0.283 |
| SES V3 | 142.198 | 8 | 17.775 | 0.627 | 0.755 |
| ACNAC V3 | 118.372 | 4 | 29.593 | 1.044 | 0.385 |
| 3-Way Interactions | 226.936 | 8 | 28.367 | 1.001 | 0.435 |
| SES ACNAC V3 | 226.936 | 8 | 28.367 | 1.001 | 0.435 |
| Between | 1822.012 | 29 | 62.828 | 2.217 | 0.001 |
| Within | 8047.426 | 284 | 28.336 | | |
| Total | 9869.438 | 313 | 31.532 | | |

a ACNAC = school program designated as academic or non-academic
b V3 = weekly hours of employment

Table 39

Summary of Multiple Classification Analysis of High School Students' Mean Scores on the TCC-R
(N = 314)

| Variable & Category | N | Unadjusted Dev'n | ETA | Adjusted for Independent Dev'n | BETA |
|---|---|---|---|---|---|
| SES | | | | | |
| 1 | 97 | -0.58 | | -0.43 | |
| 2 | 118 | 0.08 | | 0.22 | |
| 3 | 99 | 0.47 | | 0.16 | |
| | | | 0.08 | | 0.05 |
| ACNAC | | | | | |
| 111 | 210 | 1.26 | | 1.24 | |
| 112 | 104 | -2.55 | | -2.50 | |
| | | | 0.32 | | 0.31 |
| V3 | | | | | |
| 1 | 129 | -0.21 | | -0.10 | |
| 2 | 19 | 1.07 | | 0.76 | |
| 3 | 73 | -1.29 | | -1.35 | |
| 4 | 53 | 1.51 | | 1.10 | |
| 5 | 40 | 0.52 | | 0.96 | |
| | | | 0.17 | | 0.16 |
| Multiple $R^2$ | | | | | 0.129 |
| Multiple R | | | | | 0.360 |

Note: The grand mean in this analysis = 28.35.

Table 40

Means and Standard Deviations of Students' Use of Consumer Information Sources and Correlations to Mean Scores on the TCC-R
(N = 639)

| Consumer Information Variable | Mean | Standard Deviation | Correlation with Mean Scores on TCC-R |
|---|---|---|---|
| School Program | 1.55[a] | 0.616 | -0.149 |
| Family | 2.36 | 0.608 | 0.117 |
| Friends | 2.24 | 0.602 | 0.097 |
| Sales People/In-store Promotionals | 1.93 | 0.625 | 0.018 |
| Media | 2.05 | 0.651 | 0.204 |
| Consumer Magazines | 1.83 | 0.705 | 0.110 |

[a] Range possible was 1 through 3 (1 = never used; 2 = used occasionally; 3 = used a lot).

Table 41

Summary of Multiple Regression Analysis of Students' Use of Consumer Information Sources with Mean Scores on the TCC-R (N = 639)

| Consumer Information Source as Predictor Variable | R-Square | R-Square Change | B[b] |
|---|---|---|---|
| Consumer Magazines | 0.012 | 0.012 | 0.704 |
| School Program | 0.035 | 0.023 | -1.44 |
| Family | 0.050 | 0.015 | 0.901 |
| Friends | 0.053 | 0.003 | 0.412 |
| Media | 0.076 | 0.023 | 1.61 |
| Sales People/In-store Promotionals | 0.077 | 0.001 | -0.34 |

[b] B is a measure of the deviation which the variable exhibits toward or away from the y-intercept (i.e., constant = 21.4).

Table 42

Means and Standard Deviations of
Students' Money Management Practices and
Correlations to Mean Scores on TCC-R
(N = 647)

| Money Management Practices Variable | Mean | Standard Deviation | Correlation with Mean Scores on TCC-R |
|---|---|---|---|
| Consult with Parents | 3.25(5)[a] | 0.965 | 0.079 |
| Recall expenditures | 1.87(3)[b] | 0.880 | 0.160 |
| Recall savings | 1.52(3) | 0.758 | 0.218 |
| Have bank accounts | 1.22(3) | 0.414 | 0.244 |
| Have/use personal credit | 2.15(3) | 0.537 | -0.064 |
| Use parents' credit | 1.29(3) | 0.517 | 0.008 |

a Range possible was 1 through 5 (1 = never used; 3 = occasionally; 5 = a lot).

b Range possible was 1 through 3 (1 = yes; 2 = no; 3 = don't know for sure).

Table 43

Summary of Multiple Regression Analysis of
Students' Money Management Practices with Mean Scores on TCC-R
(N = 404)

| Money Management Practices as Predictor Variable | R-Square | R-Square Change | F Value | df | Significance |
|---|---|---|---|---|---|
| Have bank accounts | 0.059 | 0.059 | 19.390 | 6,397 | .05 |
| Recall savings | 0.097 | 0.037 | 10.403 | 6,397 | .05 |
| Consult with parents | 0.105 | 0.007 | 3.586 | 6,397 | .05 |
| Recall expenditures | 0.106 | 0.001 | 0.609 | 6,397 | n.s. |
| Have/use personal credit | 0.107 | 0.001 | 1.072 | 6,397 | n.s. |
| Use parents' credit | 0.108 | 0.001 | 0.680 | 6,397 | n.s. |

[a] This N differs from that in Table 42 because only yes and no responses were included in the regression analysis with the exception of the consult with parents variable.

# APPENDIX G

# CORRESPONDENCE

SCHOLASTIC TESTING SERVICE, INC.
480 MEYER ROAD • BENSENVILLE, ILLINOIS 60106
Telephone: 766-7150 (Area Code 312)

August 4, 1980

Ms. Pat Herbert
University of Alberta
Department of Secondary Education
338 Education South
Edmonton, Alberta Canada T6G 2G5

Dear Ms. Herbert:

A Canadian edition of the Test of Consumer Competencies is being prepared by Bev Tyson. It is my understanding that the instrument is now being normed. Your project should be of interest to Ms. Tyson.

I suggest you write to: Ms. Bev Tyson
Assistant Director
Consumer Information Center
Ministry of Consumer and
Commercial Relations
555 Younge Street, Main Floor
Toronto, Ontario, Canada M7A 2H6

Sincerely yours,

Herbert J. Greig

Herbert J. Greig
President

HJG/ejd

CC: Ms. Bev Tyson

Ontario

Ministry of Consumer and Commercial Relations

Consumer Information Centre

555 Yonge Street, main floor
Toronto Ontario
M7A 2H6
Staff: 416/963-0200
General inquiry: 416/963-1111

August 26, 1980

Ms. Pat Herbert
Department of Secondary Education
Faculty of Education
University of Alberta
338 Education South
Edmonton, Alberta
T6G 2G5

Dear Ms. Herbert:

I am pleased to hear that you are currently working on a secondary school project that utilizes the Test of Consumer Competencies.

For your information, I am enclosing a copy of the draft version of the Canadian test that was developed in 1979, here at the Centre. It has only been pretested with consumer education teachers to this point. However, you are welcome to use the material if it would be on any help to you in your project. We are not able to proceed with the norming at this point because of lack of funds.

We would certainly be very interested in the results of your research, utilizing this particular test.

Yours sincerely,

Bev Tyson
Assistant Director
(Consumer Education)
Communications Services Branch

BT/vl
Enclosure